Missouri Department of Natural Resources
Air Pollution Control Program

Response To Comments

Received during Public Comment Period

February 22, 2004 and March 29, 2004

Project No. 2000-05-077

Applicant: Holcim (US) Inc.

June 7, 2004

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This document lists the relevant comments received during the public comment period and the department's responses. Each comment gives a footnote reference to a copy of the specific comment within an attachment. All comments are reported verbatim and the quote marks have been left off. Any spelling, reference, or citation errors are the commenters responsibility. Holcim's responses to comments are attached to the end of this document.

The record for the construction permit consists of the construction permit application, all of the addenda to that application, pertinent memoranda and correspondence, the standard and special conditions of the permit, the project review and the documents listed at the end of the permit report. The permit standard conditions, special conditions and report do not contain all of the necessary permit information. Additional documents are referenced in the project report precisely to avoid unnecessary duplication of thousands of pages of technical documentation that has been developed and incorporated into the review as a part of the application review process.

Also pertinent to all responses to comments on this project is the role that state law plays in the regulatory scheme. Below is an excerpt from the Chapter 643, RSMo:

643.055. 1. Other provisions of law notwithstanding, the Missouri air conservation commission shall have the authority to promulgate rules and regulations, pursuant to chapter 536, RSMo, to establish standards and guidelines to ensure that the state of Missouri is in compliance with the provisions of the federal Clean Air Act, as amended (42 U.S.C. Section 7401, et seq.). The standards and guidelines so established shall not be any stricter than those required under the provisions of the federal Clean Air Act, as amended; nor shall those standards and guidelines be enforced in any area of the state prior to the time required by the federal Clean Air Act, as amended. The restrictions of this section shall not apply to the parts of a state implementation plan developed by the commission to bring a nonattainment area into compliance and to maintain compliance when needed to have a United States Environmental Protection Agency approved state implementation plan. The determination of which parts of a state implementation plan are not subject to the restrictions of this section shall be based upon specific findings of fact by the air conservation commission as to the rules, regulations and criteria that are needed to have a United States Environmental Protection Agency approved plan.

Several court cases have interpreted this section of the Missouri Air Conservation Law. The department must follow EPA regulations where they exist. In summary, the statute limits the Commission's rulemaking authority by not allowing rules that either are stricter than federal standards, or will be enforced earlier than federal standards. Permit provisions must be supported by the Commission's rules and section 643.055, RSMo, and the rules that support proposed permit terms may not be stricter than the federal rules.

Topic: The 8-hour Ozone National Ambient Air Quality Standard (NAAQS) Standard

Comment 1.: Holcim and DNR have ignored the potential impacts of the proposed cement plant on the region's ability to attain the health-based national ambient air quality standards for ozone ...[1]

Department Response: First, in Missouri, state law provides that it is the Commission that establishes areas and standards for the state of Missouri. The Missouri Air Conservation Commission has established state rule, 10 CSR 10-6.010, *Ambient Air Quality Standards*, with the purpose of providing long-range goals for ambient air quality throughout Missouri in order to protect the public health and welfare. The Commission, through this rule, has established only one standard for ozone, and that standard has a one-hour averaging time. The department did evaluate the proposed source with regard to all applicable standards. Please review the *AMBIENT AIR QUALITY IMPACT ANALYSIS* section of the permit report for the detailed discussion.

Even though the federal government has established a NAAQS for 8-hour average ozone, the U.S. EPA is only enforcing that standard in areas of the nation that have been officially designated with a specific status (for example, not in compliance with the standard). At the time of the construction permit application, EPA had not designated any area in Missouri with regard to the 8-hour average ozone air quality standard. Recently, EPA did designated certain areas in Missouri as nonattainment for the 8-hour ozone standard, but Ste. Genevieve County is not within any of those areas. Holcim's installation is located within Ste. Genevieve County currently designated as attainment for the 8-hour ozone standard. However, because state law provides that the department has the option of considering that impact, the department took that extra step and carefully analyzed, with the tools available, the impact under the standards currently in effect in Missouri.

In addition, if U.S. EPA considered the 8-hour ozone standard applicable, then U.S. EPA would consider the 8-hour ozone standard to be a factor in evaluating all PSD permits in the nation. However, a careful review of the PSD permits that have been issued in the nation since 1997, the year the "new" standard was promulgated, shows that not a single PSD permit has been evaluated for the 8-hour ozone standard. Nor did U.S. EPA comment that this was a deficiency of the permit review in its comments submitted March 29, 2004.

Finally, the emissions limitations imposed by this permit will directly control emissions of pollutants that would contribute to any exceedances of the new standard.

Action Taken: No changes were made as a result of this comment.

[1] See page 19 of the attached comments.

Topic: The $PM_{2.5}$ NAAQS Standard

Comment 2.: Holcim and DNR have ignored the potential impacts of the proposed cement plant on the region's ability to attain the health-based national ambient air quality standards for ... fine particulate matter. [2]

Department Response: Please see the response to comment 1.

Further, even though the federal government has established a NAAQS for $PM_{2.5}$, the U.S. EPA is enforcing that standard only in areas of the nation that have been officially designated with a specific status (for example, not in compliance with the standard). At this time, EPA has not designated any area in Missouri with regard to the $PM_{2.5}$ air quality standard.

In addition, if U.S. EPA considered the $PM_{2.5}$ standard in effect, then U.S. EPA would consider the $PM_{2.5}$ standard in evaluating all PSD permits in the nation. However, a careful review of the PSD permits that have been issued in the U. S. since 1997, the year the "new" standard was promulgated, shows that not a single PSD permit has been evaluated for the $PM_{2.5}$ standard. Nor did U.S. EPA comment that this was a deficiency of the permit review in their comments submitted March 29, 2004.

Finally, the emissions limitations imposed by this permit will directly control emissions of pollutants that would contribute to any exceedance of the new standard.

Action Taken: No changes were made as a result of this comment.

Comment 3.: Holcim has not conducted a BACT analysis for its fine particulate matter ($PM_{2.5}$) emissions. [3]

Department Response: See response to comment 2 .

Action Taken: No changes were made as a result of this comment.

Topic: Best Available Control Technology (BACT): SO_2

Comment 4.: Lime injection for further SO_2 reduction can be practiced at several locations in the process without defeating or duplicating the inherent dry scrubbing credited to the raw mill and without installation of large industrial wet or dry scrubbers. The SO_2 emission limit can be cut in half by the measures mentioned above. [4]

Department Response: Please see response to comment 6. The issue of SO_2 reduction through lime spray drying has been addressed in the record. After review, the conclusion remains that lime spray drying has been eliminated from BACT consideration as duplicative and ineffective when the raw mills are operating. Lime spray drying will be utilized when the raw mills are not

[2] See page 19 of the attached comments.

[3] See page 40 of the attached comments

[4] See page 269 of the attached comments.

operating. We compared emissions rate limitations of SO_2 to the recently issued Lehigh Cement plant in Iowa. Wet scrubbing at Lehigh results in an emission rate of 1.01 pounds per ton of clinker. Holcim's SO_2 emission limit is 1.26 pounds per ton of clinker, where wet scrubbing is eliminated based on energy, environmental and economic impacts and other costs. The wet scrubbing at Lehigh represents roughly only a 20% reduction in emissions from the Holcim's rate. Thus, Holcim's SO_2 rate compares favorably even without wet scrubbing.

Action Taken: No changes were made as a result of this comment.

Comment 5.: Page 28 of the fact sheet notes that wet lime scrubbing was eliminated as BACT based on its adverse incremental costs, but provides little justification beyond that provided in the application. While we generally concur that a $13,225 per ton incremental cost is high, the permit record does not clearly distinguish whether these costs are real or perceived. Because wet lime scrubbing has been installed on a number of other kilns, there is a strong presumption that these controls should be required – whether for BACT purposes or not – unless there are unique circumstances which dictate otherwise. [5]

Department Response: The permit record clearly, through referenced material and the application addenda, demonstrate these cost as being valid. The department assumes the commenter is referring to the Project Review, which has a footnote reference to the November 20, 2002 Holcim submittal, *Response to Preliminary Best Available Control Technology Determination*. The commenter should review that document for the requested information.

Action Taken: No changes were made as a result of this comment.

Comment 6.: Holcim's BACT analysis concludes that nearly 75% of the capital cost of a wet lime scrubber derives from construction of a 78 mile natural gas pipeline from Cape Girardeau to their site. The natural gas would be used to reheat exhaust gas to assure acid droplets do not corrode the downstream equipment (e.g. ductwork and stack) or otherwise deposit near the plant site. Our principle concern is that neither the application nor the department's analysis explore the degree to which gas reheat is necessary or whether there are other acceptable design alternatives which would minimize or eliminate the need for gas reheat. If the cost for reheat is minimized or eliminated, then wet lime scrubbing may be well within the range of costs used to select BACT.

For instance, is reheat required during all periods of operation, or only those times when ambient conditions cool the exhaust gases below their acid dew point? If reheat is only required a small fraction of the time, say during the coldest months in the winter, then the fuel costs might be significantly reduced. If less gas is required because reheat is not necessary at all times, would there be sufficient quantities of interruptible or firm-supply natural gas available closer to the plant? Is it necessary for Holcim to have a non-interruptible supply of natural gas? We understand the desire for certainty of a firm gas contract, but if sufficient quantities of gas are

[5] See page 10 of the attached comments.

available on an interruptible basis, is it possible to operate SO2 controls at least part of the time in a manner that is cost feasible? If there is sufficient volume of interruptible gas available? If so, what is the frequency of curtailment in the Ste. Genevieve area? What percent of the operating time would the scrubber be unavailable as a result of gas curtailment? Are there any other seasonal considerations in the operation of the scrubber? If gas is readily available in the summer time or reheat is unnecessary, could the scrubber be operated at during those periods assuming costs prove reasonable? In addition, if gas is curtailed in winter and reheat is necessary, is it possible to curtail operation of the scrubber during those limited periods?

Further, is it possible to design special, corrosion-resistant duct work to resist the effects of the acid condensation? Many power plants operate scrubbers with special stack and duct liners to minimize the adverse effects of acid corrosion. Is this a viable solution at the Holcim plant? The materials used to protect the duct work and stack are certain to be more expensive than those selected in the absence of a scrubber, but are they cost prohibitive from a BACT standpoint?

We encourage the department to supplement the permit record in consideration of the questions raised above. If the department has already evaluated these options but has not included as part of the permit record, we encourage you to provide in the "response to comments" document. However, if these factors have not been evaluated, then we recommend that the department take a fresh look to determine if other options are feasible. For example, these options might include 1) a single SO_2 BACT limit based on wet lime scrubbing if reheat is unnecessary or sufficient interruptible natural gas is available, or 2) multiple SO_2 BACT limits; one during the periods when the wet lime scrubber can reasonably be operated and the other when only intermittent lime scrubbing is feasible. [6]

Department Response: The record, the construction permit application, all of the addenda to that application, pertinent memoranda and correspondence, the standard and special conditions of the permit, the project review and the documents listed at the end of the permit report, contains all the necessary details on the SO_2 BACT determination. It is not the purpose of the BACT process to design the industrial equipment to produce Holcim's product, but to evaluate the environmental controls to ensure they are as good as or better than the requirements. The department has complied with that responsibility.

An extensive analysis of the gas stream characteristics is included in the permit record. Also included is the necessary physical and chemical conditioning of that gas stream in order to accomplish what would normally be considered BACT. Wet scrubbing is normally considered BACT and was not dismissed lightly in this case. Even U.S. EPA recognizes limits to which a company is expected to go to achieve emission reductions, as demonstrated by its numerous rules that consider the cost of control along with many other factors. The department is not aware that interruptible natural gas supply is an excuse for non-compliance with any standards, unless it is accompanied by a Presidential directive. Buttressing the equipment that comes into contact with a corrosive gas stream does not treat or remove the corrosive element. It only allows the corrosion to occur at another point, or emits the corrosive element into the atmosphere. In the case of the power plant example, the corrosive elements form in the stack,

[6] See page 10 of the attached comments.

the last piece of equipment in the gas stream before entering the atmosphere, due to temperature reduction in the stack. Holcim would be dealing with protecting much more equipment.

Action Taken: No changes were made as a result of this comment.

Topic: Best Available Control Technology (BACT): SCR

Comment 7.: Ammonia injection in the presence of a catalyst known as Selective Catalytic Reduction (SCR) is actually technically feasible and potentially an ICT. SCR can only be dismissed on economic arguments or if the combination of SNCR and operation of the calciner in a reducing atmosphere (e.g. MSC) together can achieve similar results. [7]

Department Response: Technical feasibility, as it is used in the BACT review process, must meet two criteria, demonstrated and available. Technology may be considered "demonstrated" if it has been shown to work properly on other manufacturing processes. In that case, the technology must also be transferable to the industry type under consideration. Also, the technology must be commercially available to the applicant. It this case, it is not economic reasons that make SCR infeasible. Please refer to the permit record, including the referenced technical documentation, "*Best Available Control Technology Analysis Update - Selective Catalytic Reduction*" Volumes I & II, dated December 18, 2003 for a complete discussion of the elimination of SCR as BACT.

Action Taken: No changes were made as a result of this comment.

Comment 8.: In the BACT Analysis for NO_x, the Department found that Selective Catalytic Reduction, was technically infeasible, in part, because "the cement kiln gas stream has a high degree of fluctuation, both short and long-term." What is the source and nature of this fluctuation? Was this fluctuation accounted for in the evaluation of the other technologies? If not, how will such fluctuations affect achieving the specified emission limits and will those impacts be monitored? The BACT analysis also did not delineate why Low-NO_x burners were not considered to be the "Top" control technology? [8]

Department Response: Cement kiln gas stream characteristics are important when emerging technologies are being evaluated for their air pollutant emission reduction performance. In this case, SCR is not a well-known air pollutant control technology for the cement industry. The other technologies under consideration are much better understood because of the cement industry's experience with the application of the technology. Therefore, by virtue of the vendor or applicant experience with the technology, the variation in the gas stream characteristics can be dealt with. For SCR, the variation in the gas stream characteristics adds another unknown to the transfer of this technology to the cement kiln source category. Since the gas stream fluctuation

[7] See page 270 of the attached comments.

[8] See page 261 of the attached comments.

effects are being dealt with for the considered technologies at existing facilities, their effects have been taken into account.

Low-NOx burners were considered and included as part of the BACT requirement. Please refer to condition (2)(C)1. and permit pages numbered 9 and 30 through 33. However, page 33 of the permit report does not specify that all of the remaining listed technologies, including low-NOx, will be implemented.

Action Taken: The final Project Review will contain the appropriate wording recognizing the use of low-NO_x burners.

Comment 9.: In the second step of the top-down BACT analysis Holcim wrongly eliminates selective catalytic reduction. [9]

Comment 10.: Comments to the New York Department of Environmental Conservation by the Massachusetts Department of Environmental Protection, March 4, 2004. [10]

Comment 11.: Letter from State of Connecticut, Attorney General Richard Blumenthal, March 18, 2004, with attached March 2, 2003 Memorandum from Connecticut Department of Environmental Protection [11]

Comment 12.: Letter from KWH Catalysts, Inc. to Camp Dresser & McKee Inc., February 27, 2004 [12]

Comment 13.: Response of Friends of Hudson to St. Lawrence Cement's Supplement LAER Analysis, March 24, 2004 [13]

Department Response: The department disagrees. First, the New York site is located in a nonattainment area. Therefore, Holcim must meet a different emission limit standard, lowest achievable emission rate (LAER), in New York. In Missouri, Holcim's site is located in an attainment area, and therefore must meet the best available control technology (BACT) emission limit. Generally speaking, LAER is intended to result in a more strict emission limit than BACT, because the source is working in a nonattainment area. Ste. Genevieve County, where Holcim's site is located, is not a nonattainment area. Page B-5 of the draft 1990 New Source Review Workshop Manual gives the following guidance when ranking technologies:

"Technologies required under lowest achievable emission rate (LAER) determinations are available for BACT purposes and must also be included as control alternatives and usually represent *the top alternative*." (emphasis added)

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[9] See page 40 of the attached comments.

[10] See page 229 of the attached comments.

[11] See page 244 of the attached comments.

[12] See page 249 of the attached comments.

[13] See page 253 of the attached comments.

The elimination of SCR based on technical feasibility considerations is justified. The Camp, Dresser & McKee's "Response to St. Lawrence Cement's Supplemental LAER Analysis" dated March 24, 2004, does not produce a response to Holcim's request for a bid regarding SCR construction at Lee Island. The report does provide a cement kiln proposal where KLM indicates it can construct an SCR to achieve 90% NO_x reduction. However, critical St. Lawrence (similar to Lee Island) system characteristics were changed by Camp, Dresser & McKee without consulting with Holcim. In light of this fact, the vendors must still be considered unresponsive. Page B.12 of the draft 1990 New Source Review Workshop Manual states:

"Technologies which have not yet been applied to (or permitted for) full scale operations need not be considered available;"

Action Taken: No changes were made as a result of this comment.

Topic: Best Available Control Technology (BACT): NOx

Comment 14.: We believe, based on review of information currently in the record, that application of SNCR to the proposed Holcim Lee Island plant is reasonable as BACT, despite MDNR's elimination of SNCR as BACT on environmental and economic grounds. MDNR appears to have based its decision to eliminate SNCR as BACT on two concerns: 1) the potential for adverse opacity from secondary plume formation and 2) that SNCR is cost unreasonable. These concerns do not square with past determinations made by the department, nor does the permit record establish a basis for the changes signaled by the draft Holcim permit. [14]

Department Response: The department disagrees with the comment. SNCR was not eliminated from BACT based on cost. The draft permit and the complete record demonstrate that SNCR is eliminated based on environmental impacts. The following is directly from the draft permit, NO_x BACT section:

"The potential for an opacity violation of state and federal regulations would have to be addressed before, or as a part of, determining that SNCR is BACT. SNCR must be eliminated from further consideration as BACT for NO_x based on environmental and economic impacts."

However, the draft permit did not use the appropriate BACT phrasing in the discussion on evaluation and ranking. Therefore, the department is revising the permit to correctly state the method used to eliminate SNCR as BACT.

EPA cites past department permitting decision when they say that the department is being inconsistent. EPA referred to the University of Missouri project that did not install SCR because of cost. Actually, the primary reason for acceptance of the UM project without SCR was the risk the ammonia handling posed to campus students and Columbia citizens. The cost was high, but not as high as another utility project permit application that was denied because of the failure of the applicant to include SCR, even at costs in excess of $10,000. In the case of the UM project, the control technology, SCR, was eliminated as BACT mostly for environmental reasons. The

[14] See page 3 of the attached comments.

department puts emphasis on the entire BACT process, including technical feasibility as well as considering energy, environmental and economic impacts of a control technology.

However, even though SNCR was not chosen as BACT, it is important to note that Holcim has proposed to use SNCR to further reduce emissions of nitrogen oxides. Holcim is required to limit nitrogen oxide emissions during the summer time, May through September inclusively, immediately upon commencement of operation. In addition, after several years of operations Holcim is required to reduced their annual nitrogen oxide emissions to a lower level than the BACT emissions rate. Holcim proposes to meet these limits through the use of selective non-catalytic reduction or SNCR. However, even if Holcim has technical difficulty with this control and determines this technology is not feasible on their plant, Holcim will still have to meet the reduced emission limitation through other means, such as alternative control technologies or operational changes.

Action Taken: The final permit will contain the appropriate wording.

Comment 15.: SNCR was previously pilot tested at the Lehigh Cement plant in Mason City, Iowa. Based on the success of that test, SNCR was recently required as BACT in a prevention of significant deterioration ("PSD") permit issued to the company. Missouri also required SNCR in a "synthetic minor to avoid PSD" permit recently issued to Continental Cement near Hannibal, MO. Both projects create a strong presumption that SNCR technology is technically and economically viable as BACT. [15]

Comment 16.: SNCR was inappropriately disregarded in the fourth step's assessment of energy, environmental, and economic impacts. [16]

Comment 17.: By now ammonia or urea injection known as Selective Non-Catalytic Reduction (SNCR) is actually BACT and not an Innovative Control Technology (ICT). This is based on cost-effectiveness and several dozen worldwide applications. [17]

Department Response: The department agrees that regional demonstration of control technologies has a significant influence on the BACT decision-making process. However, several factors bear directly on the BACT decisions for this project. The department believes that upon review, as discussed below, the BACT determination set out in the draft permit for this project is confirmed, rather than invalidated.

Holcim's permit contains a BACT limit of 2.80 pounds of NO_x per ton of clinker based on a 30-day rolling average (after the first 24-month period of operation) without SNCR. Holcim's draft permit also contains a limit of 2.4 pounds of NO_x per ton of clinker based on a 12-month rolling average (after the first 7-year period of operation) with SNCR. In addition, Holcim's draft permit contains a summer season limit (May to September) of between 1,622 and 1,822 tons of

[15] See page 4 of the attached comments.

[16] See page 44 of the attached comments.

[17] See page 269 of the attached comments.

NO_x for the 153-day period, depending on the availability of emission reduction credits. This would represent an emission limit of 1.80 (1.60 at the 1,622 level current level) pounds of NO_x per ton of clinker averaged over the summer season. If the annual emissions corresponding to 5,194 tons of NO_x per year (or 4,994 tons of NO_x per year) are looked at, the rate would be 2.15 (2.07 at the 1,622 tons) pounds of NO_x per ton of clinker.

Lehigh's construction permit contains a BACT emission limit of 2.85 pounds of NO_x per ton of clinker based on a 30-day rolling average after SNCR. There is also a NO_x emission limit of 427.5 pounds per hour based on a calendar month average used to demonstrate the project's insignificance. This appears to be equivalent to 3.52 pounds of NO_x per ton of clinker based on a calendar month average. It appears that Lehigh may be able to achieve its NO_x emission limits without SNCR. Page B.7 of the draft 1990 New Source Review Workshop Manual states:

"For example, in cases where the level of control in a permit is not expected to be achieved in practice (e.g. a source has received a permit but the project was canceled, or every operating source at that permitted level has been physically unable to achieve compliance with the limit), and supporting documentation showing why such limits are not technically feasible is provided, the level of control (but not necessarily the technology) may be eliminated from further consideration."

None of the control equipment in the permits cited in the comment are constructed or operational yet. Whether either Continental Cement in Missouri or Lehigh Cement in Iowa finally operates SNCR is not a foregone conclusion.

Completion of the Continental Cement plant project near Hannibal, MO now appears questionable. The department hopes that Continental Cement will complete its construction and finally operate, but understands there may be some difficulties at this time. Continental Cement applied for a construction permit and included SNCR not because the department required it, but with the intention of "netting out of" the PSD permit process. SNCR was Continental's method for reducing its NO_x emissions below the actual emission baseline. Continental's 12-month rolling total is equivalent to about 2.53 pounds of NO_x per ton of clinker. There is also a 30-day average limit of 8.0 pounds of NO_x per ton of clinker. Even these levels, which sometimes can result in greater than BACT control, are higher than Holcim's.

Some further facts about the Lehigh Cement permit, which was applied for in August 2003 (39 months after Holcim's application), are worth noting. It is significant that Lehigh was able to do pilot testing of Lehigh's gas stream characteristics (something not available in the Holcim case) in order to determine SNCR applicability. The draft permit discusses this very point. Quoting from page 31 of the draft permit:

"Designing for a nonexistent (preconstruction) cement kiln gas stream (even if short-term variability were not an issue) is made more difficult because the actual gas stream can not be tested and analyzed."

Although this phrase refers to SCR, it would also apply to SNCR. The fact is, it is much easier to design for a known target, rather than an unknown one. Iowa's *Prevention of Significant Deterioration (PSD) Permit Review, Technical Support Document for Issuance of PSD Permits*

for Project Number 03-490, Plant Number 17-01-005, suggests that the ability to conduct a pilot test was the reason SNCR is set as BACT. Quoting in part from this document:

"A test was performed in order to demonstrate whether or not SNCR would work on Lehigh's kiln. The test showed this technology was technically feasible. Based on the amount of reduction from the test this technology is also considered economically infeasible." [18]

The record for Holcim's permit consists of the construction permit application, all of the addenda to that application, pertinent memoranda and correspondence, the standard and special conditions of the permit, the permit report and the documents listed at the end of the permit report. This record does support SNCR as innovative rather than BACT. It is significant to note here that Holcim applied for this construction permit in May 2000. Since that time, some PSD applications have been issued permits regarding SNCR. This facility was designed and develop based on the technology at the time of application, and the department has revisited it since the application was filed. The department believes that even now SNCR is appropriate but still innovative for Holcim's design. No supplements are needed to the record to demonstrate SNCR as innovative rather than BACT.

Action Taken: No changes were made as a result of this comment.

Comment 18.: The permit record reports the cost of SNCR control as $1,354 and $3,833 per ton removed as the basis of NO_x alone and combined NO_x and CO emissions, respectively. This was apparently done because CO emissions are expected to increase if SNCR is selected as BACT. We noted earlier that the lower cost figure is well within the range used to select NO_x controls as BACT. In addition, we also consider the projected $3,833 per ton NO_x removed to be reasonable within the range of other add-on NO_x controls in Region 7 and across the country, even though we do not typically consider combined pollutants when considering BACT costs. [19]

Department Response: The permit record consists of the construction permit application, all of the addenda to that application, pertinent memoranda and correspondence, the standard and special conditions of the permit, the project review and the documents listed at the end of the permit report. The record states that cost was not the determining factor in the decision to eliminate SNCR from BACT. The department agrees that ***if*** cost were the sole consideration in the BACT process, then SNCR would be BACT. However, EPA, the authors of the *New Source Review Workshop Manual (Draft October 1990)*, went to great lengths to make the point that cost is not the only factor. The department believes that even now SNCR is appropriate but still innovative for Holcim's design. No supplements are needed to the record to demonstrate SNCR as innovative rather than BACT.

Action Taken: No changes were made as a result of this comment.

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[18] See page 10 of 22 of Iowa's *Prevention of Significant Deterioration (PSD) Permit Review, Technical Support Document for Issuance of PSD Permits for Project Number 03-490, Plant Number 17-01-005, PSD Fact Sheet.*

[19] See page 6 of the attached comments.

Comment 19.: Unless the final permit record justifies a technology other than SNCR as BACT, we encourage the department to establish a limit of 2.4 pounds of NO_x per ton clinker limit (30-day rolling average) with additional, tighter seasonal controls as appropriate. An optimization period during which Holcim would have a higher limit, such as 2.8 pounds NO_x per ton clinker (30-day rolling average) also appears acceptable as BACT. We recommend that BACT controls should be applied year-round. [20]

Department Response: The department agrees with the comment. The draft permit does indeed establish a 2.4 pounds of NO_x per ton of clinker (on a 12-month rolling average basis) required year-round. The record supports the draft permit emission limitations. Please see the response to comment 15. Every emission limitation in the draft permit, except the ozone season emission limitation, requires continuous, year-round compliance. However, as noted in the draft permit, SNCR may not be able to be operated effectively year-round. This is due primarily to the anticipated affects of atmospheric conditions and opacity. As EPA has noted in this comment, BACT controls should be applied year-round. Therefore, the permit record clearly and sufficiently demonstrates that SNCR is ICT, not BACT.

Action Taken: The final permit will contain the appropriate wording. Additional wording has been included in special condition (3)(A)3. and 4.

Comment 20.: Multistaged Combustion (MSC) in the calciner needs to be described so that its components (at least two burners in the calciner/kiln inlet zone in addition to the main kiln burner) are actually installed and operated in a reducing atmosphere as described by the manufacturer's product literature. [21]

Department Response: The department disagrees. Holcim is being required to comply with various NO_x emission rate limitations. Beyond that, as a general condition of the permit, Holcim is required to construct and operate according to the application and attachments submitted. Identifying each element of the construction and operation as a special condition is not necessary.

Action Taken: No changes were made as a result of this comment.

Comment 21.: The goal at the end of the initial two year period should be lowered to 2.45 lb/ton of clinker reflecting the actual emissions from similar MSC kilns in Florida that started up 5 to 8 years prior to the presently anticipated startup date on the Holcim Lee project. [22]

Department Response: The department disagrees. The Florida cement kilns were originally permitted at a much higher emission rate, 2.8 to 3.1 pounds per ton of clinker, than they are currently operating. With sufficient information, actual emissions can be valuable information

[20] See page 6 of the attached comments.

[21] See page 269 of the attached comments.

[22] See page 269 of the attached comments.

regarding to achievable emission rates. However, actual emission can vary greatly depending on non-control technology related variables (e.g. raw materials). The BACT analysis is intended to be a site-specific analysis. As such, the application of a specific control technology may result in a different emission rate.

The Holcim BACT analysis reviewed the information regarding BACT determinations that have been made. Please refer to the response to comment 15. The emission rate limitations imposed by the permit appear to be in-line and even exceed what has been demonstrated. The Florida cement kilns have been given five (5) to eight (8) years to achieve the 2.45 pounds per ton of clinker level. That is the same time period that the department is allowing Holcim to achieve the 2.4 pounds per ton of clinker. In light of this information and that SNCR is being required in the Holcim permit, the permit record clearly and sufficiently demonstrates SNCR is ICT, not BACT.

Action Taken: No changes were made as a result of this comment.

Comment 22.: The reliance on adverse opacity to exclude SNCR raises a number of other questions which are not addressed in the permit record. For example, is opacity more environmentally significant than NO_x? What are the anticipated frequency and magnitude of opacity exceedances? What if these exceedances occurred on only one day? Or are marginally non-compliant? Should SNCR be eliminated as BACT for the other 364 days? Other cement kilns have experienced problems with secondary plume formation whether they have SNCR installed or not. If SNCR is not the root cause for the opacity problems, should SNCR be eliminated anyway? If opacity is of such significance, should additional weight be given to selection of scrubbing technology which would help to reduce secondary plume formation? In summary, the record should consider these questions and alternatives for establishing alternate opacity limits, if needed, before disqualifying SNCR as BACT. [23]

Department Response: The department believes that the implementation of SNCR as BACT (rather than ICT) raises more questions than it answers.

The department disagrees with the comment. EPA appears to be suggesting that it is the department that must decide, without guidance from EPA, which federal requirements a permittee is to violate or comply with, based on state specific issues. The department will not issue Holcim a permit that requires Holcim, regardless of how it operates their control equipment, to violate a legal requirement. The department will not issue a permit that is inconsistent in this way.

EPA laid out a number of regulatory schemes by which opacity violations can be dealt with, but Holcim would have no control over any of them. The department is delegated responsibility from EPA to enforce 40 CFR 63 Subpart LLL, *National Emission Standards for the Portland Cement Manufacturing Industry*. However, that delegation does not include granting variances to the standards. U.S. EPA's did not say that EPA would grant such a variance. As noted in the response to comment 14 above, the question of opacity would have to be dealt with in advance of

[23] See page 4 of the attached comments.

permit issuance. In light of Holcim's lack of control of the regulatory actions need to excuse opacity violations, SNCR remains ICT, not BACT.

Action Taken: No changes were made as a result of this comment.

Comment 23.: In conclusion, in order to exclude SNCR as BACT the permit record must clearly document that the technology is neither supportable from a technological or economical point of view. We encourage the department to carefully review and respond to the issues raised above. [24]

Department Response: The department carefully reviews and responds to all of the issues raised by commenters.

The department agrees with the comment. The department believes that the record clearly and sufficiently defends the BACT decisions presented within the draft permit. The record clearly and sufficiently demonstrates that SNCR is ICT, not BACT.

Action Taken: No changes were made as a result of this comment.

Comment 24.: DNR caved in by changing its original BACT determination from SNCR to Holcim's urges for MSC. [25]

Department Response: The department's original BACT determination is the determination presented in the draft permit issued for public comment. That determination did not change. That initial determination was done February 22, 2004. The development of a BACT determination is a dynamic, evolving process of proposals (the application) and questions and answers, beginning when the application is received by the department. There are multiple intermediate work products (e.g. different opinions along the way) at any particular point in the process. However, those intermediate work products are just that, and do not represent a "determination" in any official departmental or legal sense. The record fully supports the department's determination in this case.

Action Taken: No changes were made as a result of this comment.

Topic: Best Available Control Technology (BACT): CO

Comment 25.: The 6.0# CO per ton clinker, 12-month rolling average, BACT limit proposed in Condition (2)(D) appears to be very high compared to the recently issued CO BACT limit for Lehigh Cement in Mason City. As previously described, the Lehigh permit requires the use of SNCR and establishes a CO BACT limit of 3.7# CO per ton clinker, 30-day rolling average. While we understand that CO may be higher for units that use SNCR, the record does not clearly

[24] See page 5 of the attached comments.

[25] See page 45 of the attached comments.

support why the Holcim limit would need to be 62% higher than a recently permitted project with similar NO_x controls. In addition, irrespective of whatever limit is set for the Holcim project, we believe that the CO BACT limit should be set in consideration of a 30-day average, unless the record clearly establishes the need for a longer averaging time. [26]

Department Response: The department disagrees with the comment. The record discusses in detail what is anticipated for CO emissions and why the BACT emission rate was set. The CO emissions are related to the NO_x emission rate. Please refer to the NO_x emission comparison in the department's response to comment 15. Also, Holcim's construction permit application preceded Lehigh's by three and a half years. Please refer to response to comment 40 for a discussion of the averaging time question.

It is significant to note that Holcim is using the same CO BACT control technology that Lehigh is using, namely, proper kiln design and operation. EPA knows that should Lehigh or Holcim's proper kiln design and operation result in a higher CO emission rate than the emission limit in the permit, and at the higher rate no other requirements are violated, then Lehigh or Holcim may petition that the higher rate be put in the permit. In other words, in the absence of other violations, implementation of the stated control technology is the foremost consideration.

Action Taken: No changes were made as a result of this comment.

Comment 26.: Emission limits for VOC and CO should be reviewed given the availability of hot tertiary air to complete combustion. [27]

Department Response: The department disagrees. Please see the response to comment 25. Holcim may indeed make use of any VOC or CO reductions that it may find in order to achieve some buffer. However, in terms of the BACT review, the department is limited to at least meeting the requirements. A review of the national PSD permitting record demonstrates that, even in Florida, good combustion practice is BACT for CO. The record clearly and sufficiently demonstrates that good combustion practice and selective quarrying is BACT for this project.

Action Taken: No changes were made as a result of this comment.

Topic: Best Available Control Technology (BACT): PM_{10}

Comment 27.: The permit does not appear to require initial compliance verification testing for PM_{10} point sources. Since compliance with the PSD permit is determined independently from the MACT and the Title V operating permit, all testing should occur within a reasonable period of time following startup of the plant. We recommend a period of between 60 days after achieving maximum production and 180 calendar days following startup. In addition, we recommend that for any testing of PM_{10}, that the permit explicitly require collection of the filterable and condensible fractions pursuant to approved test methods such as those found in

[26] See page 11 of the attached comments.

[27] See page 270 of the attached comments.

40 CFR Part 51, Appendix M, Methods 201, 201A, and 202. If testing is deferred or delayed beyond the typical testing period following startup of the plant, the record should provide a clear basis for doing so. In addition, we recommend that for any testing of PM_{10}, that the permit explicitly require collection of the filterable and condensable fractions pursuant to approved test methods such as those found in 40 C.F.R. Part 51, Appendix M, Methods 201, 201A and 202. [28]

Department Response: The department agrees that an initial testing period must be specified.

The department and Holcim discussed the appropriate test methods for PM_{10} at Portland Cement plants extensively. The permit already specifies that the appropriate testing methods be used (see special condition (1)(F)). The department has required that a testing protocol be developed jointly to ensure that quality testing is conducted. This protocol, developed at the time of testing, is the appropriate place to establish the testing methods. Please refer to special conditions (1)(E) and (1)(F).

Action Taken: The final permit will contain the appropriate wording. The department is adding special condition to (1)(P) that requires all initial testing specified in the permit be conducted within the earliest of 60 days after achieving maximum production or 180 days after startup.

Comment 28.: Condition (2)(A)1.E. requires Holcim to submit an operations and maintenance plan describing how pressure drop measurements for each baghouse will be used to provide a reasonable assurance of compliance. While this approach may be a useful supplement for baghouses not otherwise required to monitor under the MACT standard, it appears to deviate substantially from the monitoring that will be required under the MACT standard for the in-line kiln and raw mill, the clinker cooler, raw or finish mills, and raw material dryers. To assure that the terms of the PSD permit can be independently verified prior to issuance of the Title V permit or the required MACT compliance demonstration, we recommend that MACT-compliant monitoring be specified directly in the PSD permit for all emission units with a monitoring requirement under the MACT. We also encourage installation, operation, maintenance, calibration, and certification of this monitoring equipment within 60 days of the date the plant achieves its maximum production, but no later than 180 days after startup of the cement production operations. The monitoring specified in the permit should include continuous opacity monitors (COMS), baghouse leak detector systems (BHLD), visible emission assessments, and consideration of PS-11 certified continuous particulate matter emission monitors (PM-CEMS), for all equipment required to monitor under the MACT. [29]

Department Response: The department agrees with EPA. The department is making the changes noted below as a part of the final permit.

Action Taken: The final permit will contain the appropriate wording. To verify compliance with special condition (2)(A)1.B., the department is adding a special condition to require testing of up to 10% of the baghouse-controlled point sources at the installation. Table 3, *Holcim (US)*

[28] See page 8 of the attached comments.

[29] See page 8 of the attached comments.

Inc. – Lee Island, Applicability Table contains a complete listing of the fabric filters that must be tested.

Comment 29.: For any remaining baghouses for which a pressure drop monitoring system is retained, the record should clarify how one measurement every 24-hours is sufficient to provide a reasonable assurance of compliance on an on-going basis. Even though the units may not be subject to the Part 64 compliance assurance monitoring requirements, general guidance on the use of pressure drop monitors as a compliance assurance tool, found in EPA's "CAM Guidance Document" at http://www.epa.gov/ttn/emc/cam/ap-a8-15.pdf, recognizes that pressure drop should be measured continuously and manually recorded daily. In addition, we recommend that the language in Condition (2)(A)1.E.(IV) concerning "operating pressure drop within the design conditions specified in the manufacture's performance warranty" be removed. Unless the pressure drop range is determined during the initial stack test results, it may be possible to operate within the manufacturer's warranty but yet be out of compliance with the permit limitation. We recommend that the permit concentrate on the pressure drop range measured during initial compliance and establish appropriate bounds for which operation would continue to be in compliance with standards. [30]

Comment 30.: The requirements of special conditions (2)(A)1.E.(I) through (V) will be addressed through the Operations and Maintenance (O&M) plan required by special condition (1)(A). Therefore, these requirements are redundant and should be deleted. In addition, the requirement to conduct daily delta-P readings is redundant with the Portland Cement MACT rule (PCMACT), which requires periodic viable emissions (VE) monitoring. [31]

Department Response: The department agrees with these comments.

Action Taken: The final permit will contain the appropriate wording. Condition (2)(A)1.E.(I) to (V) will be replaced with wording that specifies that absent another rule, Holcim will monitor baghouses according to the requirements in the PCMACT.

Comment 31.: Condition (2)(A)5.D. contemplates a process where the company will submit a plan if the moisture content of the rock, on two successive occasions, is less than 1.5% moisture. If there is a high probability this will occur, we believe the permit should incorporate any necessary contingency measures now rather than later; especially if an exceedance of the moisture standard is linked to a NAAQS or increment problem. We recommend that the permit should anticipate the need for additional control and specify the measures that Holcim will have to undertake if the moisture content of the rock is less than is needed to protect the air quality analysis. [32]

[30] See page 8 of the attached comments.

[31] See page 334 of the attached comments.

[32] See page 9 of the attached comments.

Comment 32.: The requirement to amend or modify this permit should consider an allotment of time to develop the amendment or modification. Holcim therefore requests the following changes to the condition:

If the first test should indicate the inherent moisture content of the rock is less than 1.5% by weight, the permittee shall conduct a second test within thirty (30) days. If two (2) consecutive series of test results should indicate the final moisture content of the rock is less than 1.5% by weight, then the permittee will apply to amend this permit or submit a modification request to account for the revised information within thirty (30) days after receipt of the most recent test data. [33]

Department Response: There is not a high probability of low moisture. As for the request for a certain allotment of time beyond immediately, the department believes that Holcim should begin the development of a corrective action plan at the first sign of a problem. The first indication would be the first test that failed the 1.5% moisture test. Holcim would have thirty (30) days from that test to conduct a second test. A corrective action plan is not required until the results of the second test confirm the results of the first test. Immediate implementation of the corrective plan is appropriate at that time.

Action Taken: No changes were made as a result of this comment.

Comment 33.: Condition (2)(A)2.C. requires submission and approval of a dust suppressant control plan prior to implementation. Since the suppression equipment and application schedules should already be in place by the time the quarry operations begin – and arguably should be represented as explicit conditions in the permit – the permit should include, at a minimum, specific milestones for submission of the plan by Holcim, review by department, and any final decision dates. These dates should precede the date the first haul road is constructed. [34]

Department Response: The department will include a requirement that the dust suppressant control plan be submitted to the department 180 days prior to quarry plant operation.

Action Taken: The final permit will contain the appropriate wording changes to establish a submittal date for the dust suppressant control plan.

Comment 34.: Condition (2)(A)3.B. notes that the plant haul roads shall be paved in accordance with industry standards. Is there a specific ASTM or other peer-reviewed rule or standard which identifies these performance measures? Since it is likely that there are many such standards, the permit should clearly state a preference if necessary to validate the modeling assumptions. As a minimum, the permit should include a reference to the appropriate standards document, or should otherwise include explicit performance measures for paving the haul roads. [35]

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[33] See page 335 of the attached comments.

[34] See page 13 of the attached comments.

[35] See page 13 of the attached comments.

Department Response: The department disagrees with the comment. The permittee is responsible for identifying the appropriate standard for road construction. Should air pollution control violations occur later as a result of improperly constructed or maintained roads, it is Holcim who will be faced with the defending its choice of road standards. If the department establishes a standard in the construction permit, then when the standard changes, which they do over time, the permit would contain an irrelevant standard. This issue would best be visited within the Part 70 Operating Permit that will be issued to Holcim. The operating permit is the best place to establish these types of standards, since the operating permit is revisited every five years.

Action Taken: No changes were made as a result of this comment.

Comment 35.: Condition (2)(A)3.C. requires the company to maintain and repair the road surface as necessary. Who verifies that this is done? The company, a MDNR air inspector, a Missouri highway inspector, or other? So that the potential for disputes is minimized, it is important that the permit clearly specify what paving standards must be met and who has the ultimate responsibility for verifying compliance with those standards. [36]

Department Response: The department is responsible for enforcing the Missouri Air Conservation Law, Chapter 643 RSMo., and rule requirements adopted under that authority. The department is responsible for monitoring and enforcing Holcim's compliance with its permit, including this condition. See response to comment 34.

Action Taken: No changes were made as a result of this comment.

Comment 36.: Condition (2)(A)3.D. limits fugitive emissions beyond the "property line of origin". Is this meant to be something other than the fenced or restricted property line? If so, the condition could benefit from further description. If not, it might be less confusing to just refer to "property line". [37]

Department Response: The department agrees with the comment.

Action Taken: The final permit will contain the appropriate wording changes.

Comment 37.: Lastly, we recommend inclusion of explicit permit terms that mimic the assumptions used in the PM_{10} modeling. For example, the modeling takes into account the number of vehicle miles traveled and type and quantity of suppressants used to control fugitive dust from haul roads. If these conditions are not included as permit conditions, then the permit record should clearly explain why such conditions are unnecessary or should provide further detail in the fact sheet or "response to comments" document to establish a basis for the

[36] See page 13 of the attached comments.

[37] See page 14 of the attached comments.

conditions under which the modeling predicted compliance with the air quality and increment standards. In any case, there must be some basis upon which the company can certify its compliance status and also upon which a state or EPA inspector may determine that the underlying conditions are being met. [38]

Department Response: The department disagrees. The modeling actually is based upon emission rates that have been *derived* by taking into account various factors. The emission limitations correctly express the conditions that Holcim must meet to comply. The various factors that Holcim used to estimate its emission rates for modeling may change, as long as the emission rate that demonstrates compliance with the requirements is achieved.

The haul road dust suppressant control plan is the subject of separate special conditions. Please see special conditions (2)(A)2., 3. and 4.

The reason additional material is incorporated into the permit by reference is specifically to avoid unnecessary duplication. The data used for the modeling analyses are incorporated into and made a part of the permit by reference. Some duplication is unavoidable.

Action Taken: No changes were made as a result of this comment.

Topic: Best Available Control Technology (BACT): VOC

Comment 38.: Imported raw material specifications on mill scale and ash should be eventually prepared to insure oily or sooty substances do not unduly contribute to VOC or CO. Consideration should be given to injecting some of these materials directly into the calciner burn the combustible fractions contained therein. [39]

Department Response: The draft permit includes raw material substitution and selective quarrying at a part of Holcim's BACT. The emission limitations established in the draft permit are sufficient to insure low emissions and adequate flexibility for Holcim to operate its facility to produce quality cement. Please see page 32 of the Project Review for *Carbon Monoxide (CO) and Volatile Organic Compounds (VOC)* and special condition (2)(E).

Action Taken: No changes were made as a result of this comment.

Comment 39.: Condition (2)(E) establishes a VOC limit of 182 pounds per hour (30-day block average) and 0.33 pounds VOC per ton clinker (30-day block average), but proposes to monitor as TOC as required by the MACT. Is it certain that TOC equals VOC for kiln operations? If there are any exempt VOC's that would be counted by the TOC-CEMS, it is possible that Holcim could over-report an exceedance of the standard. If this is possible, the permit should

[38] See page 14 of the attached comments.

[39] See page 270 of the attached comments.

specify a TOC equivalent in lieu of the VOC limit so that compliance may be determined with minimal confusion. [40]

Department Response: The department disagrees that there is any confusion regarding the VOC BACT limit or determining compliance. The department set the compliance with the VOC BACT as equivalent to compliance with the PC MACT THC limit. If Holcim violates one, they have violated the other. This simplifies the monitoring and record keeping for this pollutant.

Action Taken: No changes were made as a result of this comment.

Topic: Best Available Control Technology (BACT): General

Comment 40.: Based on the record, the averaging times established for the SO_2, NO_x, and CO BACT emission limitations are not justified; both for purposes of reasonable compliance verification and for comparison of technology limits to other Portland cement PSD projects. Currently, neither the permit application nor permit record adequately demonstrates the need for the longer annual averaging period.

In addition, EPA has acknowledged the need for extended averaging times for certain combustion sources with a reasonably high degree of variability in emissions. In general, EPA recommends no standard should exceed a 30-day rolling average, whether the NAAQS averaging period is longer or not. This assures a reasonable compromise between the burden of reconciling compliance calculations over short averaging periods and the need to reconcile compliance over a reasonable period of time. [41]

Comment 41.: If the department believes that a longer averaging period is necessary, then the permit record should clearly document the need for such period, including the underlying need and consideration of lower numerical limits for the longer averaging times. [42]

Comment 42.: The SO_2 averaging time should be reduced to a monthly (or shorter) basis rather than a 12-month basis. [43]

Comment 43.: The NO_x averaging time should be reduced to a monthly (or shorter) basis rather than a 12-month basis. [44]

Department Response: Holcim has documented the need for long-term averaging throughout the application review process for SO_2, NO_x and CO. The documentation for the long-term averages is contained in the record. Averages work both ways; values below a level are required to compensate for values above a certain level.

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[40] See page 14 of the attached comments.

[41] See page 5 of the attached comments.

[42] See page 6 of the attached comments.

[43] See page 269 of the attached comments.

[44] See page 269 of the attached comments.

Short-term limits have been set for SO_2 and CO in the permit for the purposes of protecting health (NAAQS), increment (growth) or to demonstrate insignificance. These short-term standards remain in place. Therefore, NOx is the single parameter with only long-term averaging. The department agrees to change the BACT averaging time limit on NO_x from the 12-month rolling average to a 30-day rolling average. The department is not changing the value of the limit, only the averaging time. This does reduce Holcim's flexibility of complying with the NO_x BACT limit and impose additional record keeping burdens.

The BACT standard is a technology standard and as such may vary from industry to industry, or even project to project. The emission limitations expressed in the draft permit are written in multiple formats to provide easy comparison to other PSD projects. There is no requirement that the BACT standards for any given industry be written in identical units of measure. EPA's regulations do not limit averaging times to less than 30-days.

Action Taken: The final permit will contain the appropriate wording.

Comment 44.: Since the annual BACT limits proposed in the draft Holcim PSD permit appear to be in the same ranges as those specified as 30-day rolling averages in other Portland cement permits, we recommend that the averaging period for the Holcim permit should not exceed 30-days.

Department Response: The department does not believe that Holcim's BACT emission limitations are in the range of other Portland Cement facilities. Please refer to the department's responses in comment 15 and 40-43.

Action Taken: No changes were made as a result of this comment.

Comment 45.: To ensure that Holcim optimizes its cement manufacturing process and air pollution controls as expeditiously as possible, while minimizing emissions, we encourage the department to include a rigorous technology update plan in the permit, similar to that required for the Kansas City Power and Light Hawthorn PSD permit. The NO_x alternative emission limitation benchmarks found in the acid rain rules at 40 CFR Part 76 also provide a good framework for evaluating progress. We envision that during the optimization period, these periodic reports, ideally made each quarter, would include detailed information on emissions, kiln performance, control equipment performance, and any other impediments to timely compliance with the permit.

Department Response: The department is uncertain what exactly EPA is suggesting. We do not believe that EPA is suggesting that Holcim may request a relaxation of the standards should that be necessary. Of course, Holcim may apply for a construction permit to relax the emission limitations, if necessary. The existing rules allow that, and no special permit provisions are necessary. However, the department believes that all other options to comply with the BACT determination that was made must be exhausted before the permittee requests a relaxation.

The department does not believe that EPA is suggesting that PSD permits must contain a requirement that the permittee periodically revisit the BACT determination and update its emission controls.

The department believes that EPA is suggesting that some guidance be provided to Holcim regarding the ICT implementation. That is what the ICT plan is intended to accomplish. The department is amending the wording to special condition (3) to incorporate more specific ICT plan requirements.

Action Taken: The final permit will contain the appropriate wording.

Comment 46.: Holcim claims they will use the best air pollution control technology. Exactly what emissions does this technology control and to what level? What assumptions are the calculations based upon? If and when these assumptions prove untrue, will the permits be reevaluated? What emissions will be produced that technology does not control? Does using certain pollution control technologies mean that there will be no additional air pollution in St. Louis? [45]

Department Response: The draft permit contains a section that addresses these topics specifically. Please read draft permit, Project Review, section "BACT Review" beginning on page 23. The following table summarizes this section:

Pollutant	Sources	Technology	Reduction
PM_{10}	Quarry haul roads	Surfactant spray and/or periodic water spray	90%
	In-line kiln/raw mill, the clinker cooler, the coal mill system , the finish mill system and some quarry operations	Fabric Filter Systems	97+% (in the draft permit these are listed in terms of the emission rate)
NO_x	In-line kiln/raw mill	Multi-Stage Combustion	30%
	In-line kiln/raw mill	Selective Non-Catalytic Reduction	35%
	In-line kiln/raw mill	Ozone Season Limit	39%
SO_2	In-line kiln/raw mill	Inherent dry scrubbing with no alkali bypass and lime	93%

[45] See page 265 of the attached comments.

Pollutant	Sources	Technology	Reduction
		spray drying when the in-line raw mills are not in operation. This includes the selective quarrying of on-site materials and utilization of low sulfur materials from off-site	
CO	In-line kiln/raw mill		-
VOC	In-line kiln/raw mill	Selective quarrying of on-site materials and utilization of low sulfur materials from off-site	-

Action Taken: No changes were made as a result of this comment.

Topic: Innovative Control Technology (ICT): General

Comment 47.: ICT is generally reserved for first-time innovations and has been used in very few circumstances. For example, we are not aware of any PSD projects in region 7 since 1976, either approved by the region or states, which have made use of these provisions. [46]

Department Response: The department agrees with the comment. However, the requirements of ICT are laid out clearly in the regulation, which is presented in the draft permit. If a proposal meets the requirements of the regulation, the department may acknowledge it and act accordingly.

Action Taken: No changes were made as a result of this comment.

Comment 48.: We believe that approval by other states impacted by the source is an important feature of the ICT requirement. Therefore, approval by the Illinois governor should be obtained prior to permit issuance if Missouri decides to authorize ICT as part of its final permit decision.[47]

Department Response: The department disagrees that consent must be given prior to permit issuance. The following two paragraphs are copied directly from page 35 of the draft permit:

[46] See page 5 of the attached comments.

[47] See page 5 of the attached comments.

"The governor of any adjacent state that will be significantly impacted by the proposed construction gives his/her consent before the date specified by the permitting authority."

"Since ICT achieves greater reduction than BACT in this case, an air quality improvement will occur by its implementation. Illinois is the only state significantly impacted by the construction of this facility. However, should Illinois' Governor not consent to the implementation of ICT, higher NO_x emission will result. Also, failure of Illinois to consent to ICT does not mean Holcim cannot implement SNCR technology at its installation as something other than ICT. It would mean that Holcim would not implement SNCR as ICT. The permitting authority is specifically requesting Illinois comments regarding their Governor's consent. The permitting authority plans to request Illinois Governor's consent by the ICT implementation date."

Action Taken: No changes were made as a result of this comment.

Comment 49.: Lastly, if the department anticipates that special provisions may be necessary to address the potential for adverse opacity, we recommend including those procedures in the final permit irrespective of what NO_x BACT technology is selected. [48]

Department Response: The department does not anticipate that special provisions will be necessary. The department does anticipate that the construction permit will incorporate new emission limitations as a result of the findings concerning the ICT testing and evaluation process. See special condition (3) of the permit. However, it is unknown at this time exactly what the results will be of the testing and evaluation. The department expects Holcim to develop an operating procedure for the SNCR that will avoid opacity noncompliance and be effective. EPA's comment here about "special provisions" is further evidence that, just as the record clearly and sufficiently demonstrates, SNCR is ICT, not BACT.

Action Taken: No changes were made as a result of this comment.

Comment 50.: It is fair to provide some time (perhaps two years) to optimize MSC and SNCR but not five years (seven years from startup). [49]

Department Response: The department disagrees with this comment. Holcim is required to comply with the ozone period limit from startup. No standards will suffer because of the five-year implementation period. In light of all the requirements that are being developed and incorporated into the operational procedures, five years to implement the SNCR operational plan seems fair. In light of the ozone period limit, it is in Holcim's interests to develop SNCR into a viable reduction strategy since this translates directly into cement production capability.

Action Taken: No changes were made as a result of this comment.

[48] See page 7 of the attached comments.

[49] See page 270 of the attached comments.

Comment 51.: The NO_x BACT limit soon after implementation of SNCR (and MSC) should be 2.0 lb/ton of clinker given the Florida experience with MSC alone. MDNR should retain the right to further lower this value as well as the final SO_2 limit (and reconsider averaging times) following a period of optimization. This is in view of the achievement of 1 lb/ton clinker by SNCR in conjunction with a Low NO_x calciner at the SCANCEM Slite kiln in Gottland Sweden. [50]

Department Response: The BACT limits are a case-by-case analyses taking into consideration more than simply the emission rate. Differences exist between each cement kiln with regard to the raw feed material, fuels and atmospheric conditions. All of these differences may account for individualized emission rates. The record in this case demonstrates the BACT emission limit is 2.8 pounds of NOx per ton of clinker. The department points out that the ozone period limit does represent about 1.6 pounds of NO_x per ton of clinker if Holcim wants to operate at capacity during this period. See the response to comment 15. The department may reduce the NOx emission limit as a result of the testing and evaluation of SNCR. Please refer to special condition (3)(A)7.

Action Taken: No changes were made as a result of this comment.

Comment 52.: European-based equipment manufacturers, including the Holcim project's supplier, do in fact supply or include equipment to meet values of 500 mg/m3 (2.3 lb/ton of clinker) or lower at new (and some existing) cement kilns in Europe on a 24-hour basis. [51]

Department Response: The department believes that BACT, ICT and the ozone-season emission limitation (in light of all the other limits being imposed) will result in less overall emissions than those cited in the comment. Besides, the European emission limits and facilities affects on the environment are not analyzed in the same way that new sources are in the United States. Opacity is not an issue in Europe but is in Missouri.

Action Taken: No changes were made as a result of this comment.

Comment 53.: Similarly, the authorization of SNCR as an Innovative Control Technology anticipates reductions in emissions but the permit does not require confirmation of that forecast. What monitoring is required to verify the reductions? Under what conditions can SNCR as ICT be discontinued and would controls be substituted for it? [52]

Comment 54.: The draft permit offers no assurance that Holcim will employ SNCR beyond an initial, experimental period. [53]

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[50] See page 270 of the attached comments.

[51] See page 270 of the attached comments.

[52] See page 260 of the attached comments.

[53] See page 36 of the attached comments.

Department Response: Please refer to special condition (3) *Standards of Performance for Innovative Control Technology (ICT)*. The draft permit does set an emission rate limit, in two forms, pounds per hour and pounds per ton of clinker. The permit requires Holcim to demonstrate compliance with the emission rate limit using continuous emission monitors.

None of the emission rate limitations placed on Holcim are contingent emission limitations. In other words, Holcim is expected to comply with the 2.4 pounds per ton of clinker emission rate limit after initiation of the SNCR Testing and Evaluation Protocol. As with any emission rate limit, Holcim is obligated by any legal means possible to comply. If SNCR simply can not operate within the legal requirements, then Holcim must find alternate methods of complying. Please see response to comment 19.

Action Taken: The final permit will contain the appropriate wording changes to clarify monitoring is for compliance purposes. Also, additional wording has been included in special condition (3)(A)3. and 4.

Comment 55.: Are the possible opacity violations mentioned in the preceding portion of the evaluation the only "violation of other state and federal requirements" at issue? Is there a limit on the number or extent of violations that are allowed to occur during the testing and evaluation phase? Will operational procedures be developed to identify processing conditions which will maximize effectiveness? [54]

Department Response: Opacity is the parameter being referred to in the phrase, "violation of other state and federal requirements". The department and Holcim will develop a plan under which the SNCR Testing and Evaluation will be conducted. That plan will deal with how operations will be adjusted to avoid violations. The SNCR Testing and Evaluation Protocol will be developed with the express purpose of identifying "processing conditions which will maximize effectiveness".

Action Taken: The final permit will contain the appropriate wording to clarify the minimum items required in the SNCR Testing and Evaluation Protocol. Please refer to the expanded special condition (3)(A)5.

Comment 56.: EPA believes that the department's characterization of selective non-catalytic reduction (SNCR) as innovative control technology (ICT) is not supported by the record nor does the record show that the proposed decision is a reasonable application of top down best available control technology (BACT) review. [55]

Comment 57.: EPA recommends that unless SNCR is selected as BACT, the record should be supplemented. [56]

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[54] See page 260 of the attached comments.

[55] See page 3 of the attached comments.

[56] See page 3 of the attached comments.

Department Response: The department disagrees. The Innovative Control Technology (ICT) section of the Project Review lays out, in sufficient detail, exactly why ICT is justified. The NO_x BACT review also presents in sufficient detail the "Top-Down" analysis, following the October 1990 draft U.S. EPA guidance. Elimination of SNCR as BACT and its subsequent inclusion as ICT are clearly reviewed in the draft permit. The complete record does not need supplementing.

Action Taken: No changes were made as a result of this comment.

Comment 58.: Other NO_x technologies like SCR, which have only been applied to one cement kiln in the world seems a more likely candidate for ICT than SNCR. [57]

Department Response: The department agrees. However, the department must review proposals submitted and determine whether the proposals will meet all the statutory and regulatory requirements. In short, the department does not select ICT. The applicant is the one who makes that suggestion. Here, Holcim has suggested that SNCR is an ICT as applied to Holcim's proposed cement kiln, and the department agrees.

Action Taken: No changes were made as a result of this comment.

Topic: Hazardous Air Pollutants: MACT

Comment 59.: To assure that the terms of the PSD permit can be independently verified prior to issuance of the Title V permit or the required MACT compliance demonstration, we recommend that MACT-compliant monitoring be specified directly in the PSD permit for all emission units with a monitoring requirement under the MACT. [58]

Department Response: Where a standard or requirement is set by a process independent from the construction permitting process, it is best to rely on that process to establish, revise or revisit the standard or requirement rather than establish a separate authority for the standard or requirement. In other words, where a standard is set through an investigation, public review and rule promulgating process, we should not establish another, duplicative process of investigation, public review and promulgation. Holcim must comply with the federal MACT standards upon commencement of operations, regardless of permit action. Special condition (7) of the permit does identify these federal regulations that apply and mentions that Holcim must indeed comply with these standards. Special condition (7) also states that the operating permit will be the primary vehicle for federal regulation enforcement and monitoring once the operating permit is issued.

Action Taken: No changes were made as a result of this comment.

[57] See page 5 of the attached comments.

[58] See page 8 of the attached comments.

Comment 60.: For example, the requirements of the Portland Cement MACT are included by summarizing them within several conditions in the permit. … These provisions are ill advised because they create potential conflicts with the regulation. They are superfluous as the company must comply with them regardless of their presence as a condition in the permit. Therefore, they are neither necessary nor appropriate and we recommend they be removed. [59]

Department Response: The department disagrees. Special condition (7) uses the following words:

"This special condition is effective only until the issuance of the state operating permit. These emission limitations expire when superceded by the terms and conditions of the operating permit issued by the department."

and

"The permittee shall comply with all applicable provisions of 40 CFR 63, Subpart LLL and 40 CFR 63, Subpart A, General Provisions, including but not limited to the emissions limitations and operational limits detailed below."

The department included these conditions in order to more clearly communicate to everyone reading the permit what is expected of Holcim. Holcim is expected to comply with the Portland Cement MACT once it commences operation. The department wants people to know that the hazardous air pollutants were not ignored.

Action Taken: No changes were made as a result of this comment.

Comment 61.: In violation of the Clean Air Act, DNR failed to incorporate in the draft permit a case-by-case maximum achievable control technology (MACT) determination for the emission of mercury. [60]

Department Response: The department must operate within the statutory and regulatory boundaries established for it, in particular 643.055, RSMo. The department has a rule that implements §112(g) of the federal Clean Air Act. The pertinent rule section is 10 CSR 10-6.060(9). The department determined that 10 CSR 10-6.060 (9) does not apply to Holcim because a federal MACT standard has already been promulgated for Portland Cement plants. It is this federal regulation that Holcim must comply with, as is laid out in the draft permit. Please refer to special condition (7) Conditions Resulting from 40 CFR Part 63, Subpart LLL - *National Emission Standards for Hazardous Air Pollutants From the Portland Cement Manufacturing Industry* – [PCMACT]. Also see page 37 of the Project Review.

Action Taken: No changes were made as a result of this comment.

[59] See page 258 of the attached comments.

[60] See page 28 of the attached comments.

Topic: Hazardous Air Pollutants: Mercury

Comment 62.: With regard to impacts from Mercury emissions, has there been an evaluation of whether the projected emissions will lead to an increase in the issuance of health based fish advisories in Illinois? The Environmental Assessment prepared by the U.S. Army Corps of Engineers for the facility's 404 permit concluded that the projected increase would not adversely impact fish in the Mississippi River because of the wide gap between the existing value for mercury present in fish and the threshold used by the State of Missouri for issuance of health based fish advisories. The gap may be substantially smaller for a number of waterbodies in Illinois. Several waterbodies within the downwind range of plant emissions are the subject of health based advisories for several fish species and a small increase could lead to the expansion of the advisory to other species. [61]

Department Response: An evaluation of whether the projected mercury emissions will lead to an increase in the issuance of health based fish advisories in Illinois is not required, nor was one conducted. However, the department did require Holcim to evaluate the mercury effects for a number of different criteria. The department believes that no further evaluations are required or necessary in order to complete the review. A separate mercury discussion has been included in the Project Review. Please refer to page 53 of the Project Review, *Mercury Discussion*.

Action Taken: No changes were made as a result of this comment.

Comment 63.: Page 52, the third bullet of the "Mercury Discussion" of the Project Review, should read "0.08" instead of "0..08".[62]

Department Response: The department agrees with the comment.

Action Taken: The final Project Review will contain the appropriate wording.

Comment 64.: Condition (6) requires Holcim to perform a single test to determine if the annual level of mercury will remain below the PSD significance threshold of 0.1 ton per year. This determination will be made by extrapolating the results from the one-time test to full production over the course of a year. While it is appropriate to include a compliance verification condition, especially given the closeness of Holcim's projected emissions to the significance threshold, it is uncertain if one test result can adequately characterize emissions throughout the operational and seasonal range of the kiln. In addition, it appears that Holcim will be optimizing and installing additional controls on the kiln over a long period of time, which may impact the mercury emission factor. We recommend that MDNR retain the mercury testing requirement, but consider addition of other periodic testing requirements to better understand the range of mercury emissions over time. Collection and analysis of 2-4 samples a year until the kiln is fully

[61] See page 261 of the attached comments.

[62] See page 337 of the attached comments.

optimized would provide better assurance that the mercury emissions remain below the permitting threshold or that they are properly reviewed for BACT by the department.

Department Response: The department partially agrees with the comment. The department established the testing requirement because Holcim's estimate is within 20% (Holcim estimated annual emissions of 160 pounds of mercury) of the exemption or insignificance level (that is, 200 pounds of mercury per year). The department will require annual mercury testing until the kiln system is fully optimized provided the initial mercury testing results in an extrapolated emission rate greater than 50% of the exemption or insignificance level, equivalent to 100 pounds per year. The modified condition also states that the department may require operating permit term testing (once every five (5) years) as a part of the operating permit once issued, if necessary.

Action Taken: The final Project Review will contain the appropriate wording in special condition (6).

Topic: CALPUFF Class II Modeling

Comment 65.: DNR may not rely on the use of ISCST3 dispersion modeling with Lambert Airport data as sufficient to support a permit decision. Rather the CALPUFF modeling needs to be complete before the PSD permit is issued for Holcim. [63]

Department Response: Despite the myriad of air quality tools available across the globe, the department must conduct its business according to the Missouri statutes and regulations. In this case, the federal and state regulations require that the ISCST3 model be used for the purposes of predicting PM_{10} concentrations in the vicinity of Holcim. The department is requiring Holcim to complete the CALPUFF Class II analysis. But the purposes of this analysis are to confirm the ISCST3 results as being conservative (which ultimately may result in the state having more air quality increment available for other air pollution sources) and for locating of PM_{10} monitors for the post-construction monitoring network. There is no statutory or regulatory requirement that CALPUFF modeling be completed before the department issues a permit.

Action Taken: No changes were made as a result of this comment.

Comment 66.: Special condition(s) (4)(E) [64] (or (4)(E)3.B.(I) through (IV) [65]) should be removed based on the preliminary results of the CALPUFF modeling.

Department Response: The department disagrees with the comment. The results of the CALPUFF Class II analysis using seven (7) months of on-site meteorological data submitted during the comment period does indeed confirm the ISCST3 analysis. The 7-month CALPUFF analysis in fact shows a significantly smaller affect on the air quality than the ISCST3 analysis.

[63] See page 24 of the attached comments.

[64] See page 300 of the attached comments.

[65] See page 336 of the attached comments.

However, a complete year's worth of data is necessary. The ISCST3 analysis was conducted with 5-year's worth of data. Though encouraging, the seven month data set is simply too incomplete in comparison to the previous 60 month sample to be adequate for demonstration purposes. [66]

Action Taken: No changes were made as a result of this comment.

Comment 67.: We generally support the approach outlined in Condition (4)(E) requiring additional CALPUFF modeling. This study will more fully characterize PM_{10} emission impacts for the unique terrain and meteorology at the Holcim site. In conjunction with the monitoring program, there should be sufficient data to determine if there are any further concerns about PM_{10} concentrations. We also agree with the general approach for mitigating any adverse impacts if the modeling shows concentrations above the NAAQS and increment standards. However, it is unclear if Holcim must submit its mitigation plan as part of the modeling submission or at some other time. In any case, if PM_{10} concentrations predicted by the CALPUFF model are above the applicable air quality or increment standards, then any mitigation should be put in place prior to the date Holcim begins operations at the Lee Island site. To assure that the review process moves forward expeditiously we recommend additional milestones for any dispute resolution that might be necessary along with a time frame during which the department will make its final decision.

It is also unclear how the CALPUFF model results might impact the final Class I analysis. Based on this uncertainty and the state-wide increment baseline area concern described elsewhere in our comments, it is possible that Holcim and MDNR may have to re-perform the Class I impact analysis to factor in the on-site meteorology. [67]

Department Response: The department agrees with the comment. Additional wording has been added to special condition (4)(E)3.B. The department has the authority under the general reopening clause to address the Class I analysis if necessary. No additional wording to address Class I analysis is necessary.

Action Taken: The final permit will contain the appropriate wording.

Topic: Air Quality Modeling: General

Comment 68.: Given the complexity of the issue, both from a technical and legal point of view, we anticipate a number of discussions with MDNR and EPA Headquarters for some time into the future. In addition, it is likely that state and federal rule making will be necessary to properly codify the baseline areas throughout the state. In the meantime, EPA believes that MDNR has performed the Holcim Class I and II analysis consistent with their interpretation of state rules and that this issue is not an impediment to final PSD permit issuance. Nevertheless, if

[66] See page 336 of the attached comments.

[67] See page 12 of the attached comments.

subsequent modeling shows that PM_{10} or SO_2 concentrations exceed the Class I or II increments as a result of Holcim's operations, then additional mitigation will be required at that time. [68]

Department Response: The department agrees that it will address any additional mitigation necessary if additional mitigation is required. However, if modification is necessary, then it will be necessary for all permittees within the designated area and not just Holcim.

Action Taken: No changes were made as a result of this comment.

Comment 69.: The air quality demonstration is based on the air dispersion modeling and the modeling represents the operation of the facility and the operation of nearby sources. The quarry and plant haul roads at Holcim are major contributors to the predicted PM_{10} concentrations. As such, the number and type of vehicles modeled in the modeling demonstration should be part of the permit. [69]

Department Response: See the response to comment 37.

Action Taken: No changes were made as a result of this comment.

Comment 70.: To support the assertion that short-term limits for CO are not necessary to be protective of air quality, Holcim performed a comparative analysis of the in-line kiln/raw mill system and coal mill system with emission rates that are 10 times greater than those used in the application and identified in the APCP-approved air quality analysis. The results of the dispersion modeling analysis clearly indicate that, even at 10 times the proposed emission rate, CO emissions from the Lee Island plant will not cause or contribute to a NAAQS exceedance. Therefore, on the basis of the comparative analysis, Holcim requests that the short-term CO limits be removed from the permit. [70]

Department Response: The department disagrees in part with the conclusion drawn from the results of the analysis. In order to change the 8-hour average CO emission limitation to the proposed new rate, Holcim would have had to conduct pre-construction monitoring for CO. This is because the air quality modeling at the proposed CO 8-hour emission limit would exceed the pre-construction monitoring threshold in the rule. Ambient air monitoring information is collected in order to establish the existing levels of CO, and therefore, to correctly determine whether the NAAQS will be exceeded or not near Holcim. Since CO ambient air monitoring was not performed, the air quality analysis can not be used to set a new limit. Holcim may conduct further air quality modeling analyses and/or ambient air monitoring in the future in support of this request. However, a future request of this type will need to be submitted as a construction permit application and will result in a public participation process.

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[68] See page 7 of the attached comments.

[69] See page 7 of the attached comments.

[70] See page 287 of the attached comments.

The department does agree with the proposed change to the 1-hour CO emission limit because CO does not have a 1-hour average ambient air monitoring threshold. Therefore, the 1-hour CO emission limit is not subject to establishing the pre-existing CO values near Holcim. In this case, the air quality modeling analysis submitted is sufficient to support the requested emission limit change.

Action Taken: No changes were made to the 8-hour average CO emission limit. However, the 1-hour average CO emission limit has been changed to the requested value.

Comment 71.: The modeling also assumed that the Holcim's property line is fenced and as a result no receptors were modeled within the indicated property line. However, the BNSF railway that goes through the eastern part of the facility is ambient air and appears not to have been modeled. If the areas is not fenced or public access is not otherwise restricted, then the entire plant site would have to be modeled as though the area is ambient air. We recommend that the department supplement the public record and establish the appropriate conditions as necessary to assure that the assumptions used in the model are properly reflected in the permit. [71]

Department Response: The BNSF railway was accounted for in the air quality modeling analyses. The record for this project consists of the construction permit application, all of the addenda to that application, pertinent memoranda and correspondence, the standard and special conditions of the permit, the project review and the documents listed at the end of the permit report. This includes any assumptions made and subsequently used in the modeling exercises. However, a special condition is being added to clarify that Holcim will take measures to restrict access to any areas not included in the air quality modeling analysis.

Action Taken: The final permit will contain the appropriate wording.

Comment 72.: Lastly, the NAAQS for ozone have much shorter averaging periods than the 153-day ozone season compliance period proposed in the permit. Footnote 57 on page 47 of the fact sheet indicates that a limit of 10.6 - 11.3 tons NOx per day may be necessary to protect the ozone standard. These limits are not included in the draft permit. We recommend that the permit should include an enforceable short-term limit during the ozone season or that MDNR should provide further details in its "response to comments" document as to why such a limit is unnecessary. We recommend that the permit should include an enforceable short-term limit during the ozone season or that MDNR should provide further details in its "response to comments" document as to why such a limit is unnecessary. [72]

Department Response: Please see the response to comment 40-43. The department disagrees that a daily NO_x limit should be set. There are several reasons why daily emission limit is not needed. Holcim's emission rate is a demonstration of insignificance, not a protection of the NAAQS. The daily variability of the sources of emissions used in the model would outweigh

[71] See page 8 of the attached comments.

[72] See page 9 of the attached comments.

any use of a Holcim daily limit. The attainment demonstration for St. Louis includes stationary, area, mobile and biogenic sources of emissions. The area, mobile and biogenic sources account for at least two-thirds of the entire emissions. The estimated daily emission rates used in the modeling exercise are based on national activity factors, laboratory experiments or best educated guesses. The Holcim seasonal emission rate more than accomplishes the insurance needed to demonstrate insignificance on the St. Louis airshed.

Some of the VOC limits *within* the maintenance and nonattainment areas are rates averaged over the summertime period, and not 24-hour averages. The St. Louis NO_x RACT rules are examples where seasonal averaging is allowed. The rates used for sources when demonstrating compliance with the ozone standard in the modeling analysis are typical summer weekday rates, not emission limitations.

EPA's own NO_x rule emission limitations for sources outside of the maintenance or nonattainment areas are ozone period averages, and not daily limits. Typical NOx SIP rules allow sources to comply with the seasonal average using emission reduction credits purchased after the ozone period has ended. We read EPA's guidance to the states is to use ozone period averages, and not 24-hour averages. As stated earlier by statute, the department must follow U.S. EPA standards and may be no stricter than (refer to section 643.055, RSMo).

However, the department agrees that the summer season emission limit should be made more enforceable. Therefore, the department has revised the permit to include a better record keeping and reporting requirement for the summer season NO_x emission limit.

Action Taken: The final permit will contain the appropriate wording.

Comment 73.: Special condition (4)(A)2. is duplicative of (2)(B)4. and should be deleted. However, if retained should be changed to read:

The SO_2 emissions monitoring requirements specified under special condition (2)(B)4. will be used to demonstrate compliance with this condition.[73]

Department Response: The department agrees with the comment.

Action Taken: The final permit will contain the appropriate wording.

Comment 74.: Special condition (4)(B)2. is duplicative of (2)(D)4. and should be deleted. However, if retained, it should be changed to reference (2)(D)4.[74]

Department Response: The department agrees with the comment.

Action Taken: The final permit will contain the appropriate wording.

[73] See page 335 of the attached comments.

[74] See page 335 of the attached comments.

Comment 75.: Special condition (4)(D)3. as written in the draft permit presumes that an exceedance of a standard will be monitored. This presumption is not correct, based on the modeling demonstrations that have been completed. Accordingly, Holcim proposes the following modification to this special condition:

The permittee shall report the results of the above air quality monitoring for PM_{10} to the department on a quarterly basis. If concentrations are monitored that exceed a NAAQS, the permittee shall report the monitored information (the beginning and ending date and time, and the value for the applicable standard time period) within seven (7) days of the event.[75]

Department Response: The department agrees with the comment.

Action Taken: The final permit will contain the appropriate wording.

Comment 76.: Special conditions (4)(E)2. and (4)(E)3.A. should be changed to reference special condition (4)(D) rather than (3)(D).

Department Response: The department agrees with the comment.

Action Taken: The final permit will contain the appropriate wording.

Comment 77.: Late during the public comment period, we received notice from the Federal Land Manager that the 3-hour and 24-hour SO_2 limits for the in-line kiln and raw mill and the coal mill, found in Condition (4)(A), may be raised from 75 to 160 grams per second (595.2 to 1,269.8. pounds per hour) and 12.5 to 34.7 grams per second (99.2 to 275.4 pounds per hour), respectively. This change was apparently prompted by a request from Holcim made during the public comment period based on new modeling that was completed.

Since the limits were originally proposed in the permit to protect an air quality related value, this change may be of interest to the public. We encourage the department to either provide for adequate public review for this new information or explain the rationale for the change in the "response to comments" document and why the public would not benefit from further review. [76]

Comment 78.: Special condition (4)(A) of the Preliminary Determination places 3-hour and 24-hour SO_2 emission limits on the in-line kiln/raw mill system and coal mill system that are equivalent, on an hourly basis, to the proposed annualized emission limit for the facility of 1.26 lbs/ton of clinker produced. The in-line kiln/raw mill system emission limit is 595.2 lb/hr, and the coal mill system emission limit is 99.2 lb/hr.

Holcim recognizes that short-term emission limits for many pollutants are often warranted to protect against National Ambient Air Quality Standard (NAAQS) violations, Prevention of Significant Deterioration (PSD) increment violations, or other air quality related concerns. Further, Holcim believes that these emission limits can be met on a long-term basis. Due to

[75] See page 336 of the attached comments.

[76] See page 12 of the attached comments.

process variability, however, additional flexibility may be necessary on a short-term basis. Based on the operating design of the proposed kiln system, Holcim has determined that a conservative facility-wide short-term SO_2 emission limit would be of 2.8 lbs/ton of clinker produced. This translates to an in-line kiln/raw mill system emission limit of 1,267.6 lb/hr and a coal mill system emission limit of 275.6 lb/hr. These emission limits would be valid for both the 3-hour and 24-hour short-term averaging periods.

A dispersion modeling analysis was conducted to demonstrate that these emission rates would not cause or contribute to an exceedance of the PSD increment or NAAQS for SO_2. The results of the analysis indicate that the Lee Island plant will continue to demonstrate compliance with the NAAQS and PSD increments for SO_2 at the higher proposed short-term emission rates. Therefore, on the basis of the dispersion modeling analysis, Holcim requests that the short-term SO_2 emission limits be increased to 1,267.6 lb/hr for the in-line kiln/raw mill system and 275.6 lb/hr for the coal mill system.

The modeling analysis was based on the APCP-approved SO_2 modeling files that were submitted with Addendum No. 3 to the Prevention of Significant Deterioration and National Emission Standards for Hazardous Air Pollutants permit application. Attachment A describes the dispersion modeling analysis for SO_2. [77]

Department Response: The department believes that the purpose of the public participation process is to collect information, comments and suggestions concerning the draft permit. The information, comments and suggestions may indeed result in changes to the draft permit. That is, after all, the purpose of the comments. The department has carefully considered the changes that it is making to Holcim's draft permit in this response to comments, and none of those changes requires another public comment period.

The department does not believe EPA is suggesting that changes can not be made without re-notice. In this case, Holcim has provided documentation supporting its comment. The results of the original analysis demonstrate that Holcim was significantly below the standards. The changes the department is making do not affect the BACT determinations, any technology requirements, or the associated emission limitations.

Because the department has no visibility standards, we defer to the federal land manager, who has primary responsibility for protecting designated Class I areas (e.g. certain national wilderness areas or national parks) from unacceptable visibility degradation. The department provided the federal land manager a 60-day period to provide comment on the 24-hour SO_2 emission rate increases. The federal land manager provided comments in teleconference calls on May 18, 2004 and in a letter dated June 3, 2004 which stated the federal land manager "would not like to see any changes to the draft permit that could increase potential impacts in the Mingo (Wildlife Area)". Based on the department's analysis, changing this emission rate would increase the potential impacts on the Mingo Wildlife Area. Consequently, the department interprets the FLM verbal and written communication as an objection to the proposed SO_2 emission rate change from the draft permit. Therefore, the department will not be changing the

[77] See page 306 of the attached comments.

24-hour SO_2 emission rate to the request level at this time. Holcim may work with the federal land manager and department staff to develop an acceptable alternative SO2 emission limitation. Any increase in the 24-hour SO_2 emission rate at a future time will require public participation.

Action Taken: The final permit will contain the appropriate wording. Please refer to the reworded condition (4)(A).

Comment 79.: Page 48 of the fact sheet notes that the Holcim project exceeds the visibility thresholds guidelines for Class I areas and that the department is awaiting further guidance from the Federal Land Manager. Since it is possible that the FLM may recommend additional mitigation, those recommendations should considered before the state issues its final permit recommendation. If the FLM is unable to provide their final recommendations prior to the close of the public comment period, we recommend that the state either require the necessary mitigation on its own to meet the 0.005 kg/ha/yr guideline, or continue to work with the FLM and re-open the PSD permit as necessary. [78]

Department Response: The federal land manager expressed no concern with these levels in the official comment letter. In fact, the federal land manager raised no issues concerning the draft permit. The federal land manager's only comment was with regard to the air quality modeling analysis surrounding the short-term SO_2 limits. See response to comment 77. Therefore, no further action is being taken except to change the Project Review (referred to by commenter as "fact sheet") page 54, to reflect the federal land managers response.

Action Taken: The final permit will contain the appropriate wording.

Comment 80.: Condition (4)(D) requires Holcim to operate a network of PM_{10} monitors consistent with procedures to be approved by the department. Based on the closeness of predicted PM_{10} concentrations to the Class II increment and unavailability of CALPUFF modeling results to better understand the impact of unique terrain and meteorological features at the Holcim site on PM_{10} concentrations, we support MDNR's request to collect monitoring information. However, it is not clear when Holcim must submit the plan, by which date MDNR must act on the plan, and when Holcim must begin operation of the monitors. We recommend that the permit should include these milestones; in particular if there is a strong preference to begin data collection soon after a final permit decision is made. [79]

Department Response: The department agrees that more specificity is needed. Clarification as to certain milestones has been added to the permit.

Action Taken: The final permit will contain the appropriate wording.

[78] See page 12 of the attached comments.

[79] See page 13 of the attached comments.

Comment 81.: Condition (4)(D)5. contemplates the number of meteorological stations to complement the PM_{10} monitoring network might be as few as one. Since the plant is already operating three meteorological monitoring sites, we recommend that these stations continue to operate throughout PM_{10} data collection and until the approved plan terminates such monitoring. We also recommend the addition of a permit term that requires quarterly submission of the meteorological data, following some reasonable period to quality assure the data, in an approved format suitable for air dispersion modeling. [80]

Department Response: The department disagrees with the first comment. One meteorological station is sufficient. Multiple meteorological stations were established for the CALPUFF exercise, not for the monitoring program. Of course, if Holcim desires to continue collecting data from the additional meteorological stations, then the department will process the data.

The department agrees that the meteorological data must be submitted along with the ambient air quality data.

Action Taken: The final permit will contain the appropriate wording.

Comment 82.: The project would negatively impact air quality at the Mingo National Wildlife Refuge. A cumulative assessment on the Mingo National Wildlife Refuge of the impacts of Holcim's Lee Island facility and Peabody Energy's Prairie Generating Station project in Illinois should be completed.

Department Response: These assessments have been done. The results of the assessments are that Holcim complies with all the standards. Please refer to the *AMBIENT AIR QUALITY IMPACT ANALYSIS* section beginning on page 43 of the draft permit Project Review.

Action Taken: No changes were made as a result of this comment.

Comment 83.: The DNR knows that Holcim will contribute unacceptably to ozone concentrations in the St. Louis area under the old, one-hour ozone air standard. The DNR unlawfully failed to include permit conditions sufficient to render Holcim's impact insignificant.

Department Response: The record for this permit demonstrates quite the opposite is true. The department disagrees strongly with the comment. If anything delayed the progress of this project review, it was because the department labored with the emission effects of Holcim on St. Louis. Regardless of the fact that the federal regulations are silent on what new, upwind NO_x sources should do, the department was in the unique position of having information available to conduct some sensitivity analyses. The draft permit summarizes the record well. The reader is referred to pages 50 and 51 of the Project Review for a discussion under section *Photochemical Evaluation of Holcim (US) Inc. – Lee Island*. Please also see special condition (5). Also, Holcim is in an attainment area, even under the new 8-hour ozone standard.

[80] See page 13 of the attached comments.

Action Taken: No changes were made as a result of this comment.

Comment 84.: The DNR relied on illusory "conditions" that will not, in fact, reduce Holcim's ozone-causing emissions. The permit contains no limit on Holcim's NOx emissions during the ozone season. [81]

Department Response: The department disagrees strongly with this comment. Special condition (5), page 13, of the draft permit states as follows:

"(5) The permittee shall not emit from the in-line kiln raw mill system more than 1,622 tons of NO_x from the installation during the 153-day annual period, May 1st through September 30th, inclusively. This limit includes 530 tons per year of emission reduction credits (ERC) that will be retired upon issuance of this permit. The permittee may provide up to an additional 238 tons per year of ERC after issuance of this permit (for a total of up to 768 tons per year of ERC retired). For each ton per year of ERC retired, an additional 0.42 tons of will be added to the per period emission rate quoted above. In no case shall the permittee emit more than the maximum 1,722 tons of NO_x from the installation during the 153-day annual period, May 1st through September 30th, inclusively from the in-line kiln raw mill system. The permittee shall use Attachment A, or an equivalent department approved form to maintain an accurate record of NO_x emitted into the atmosphere from the entire installation."

Clearly, the permit does contain real limits on Holcim's NO_x emissions during the ozone season.

Action Taken: No changes were made as a result of this comment.

Topic: Emission Reduction Credits: General

Comment 85.: We recommend that the department supplement the record with the details of the origin of each ERC transaction, including the originating company's request to bank surplus emissions, their authorization to shift ERC to Holcim, and Holcim's request to use such credits. That way, there is no uncertainty in the permit record about the accounting for these ERCs if questions arise in the future. [82]

Department Response: The department agrees that the draft permit lacks some specificity regarding ERCs. Further, this is the program that EPA reviewed and approved as a part of Missouri's State Implementation Plan (SIP). All actions with regard to 10 CSR 10-6.410 are a matter of public record under separate rulemaking authority. However, the department acknowledges that the department's reliance on the authority of the rule was not clear in the draft permit.

Action Taken: The final permit will contain a reference to the definitions and procedures of 10 CSR 10-6.410, *Emission Banking and Trading*. The reference will be at the very beginning

[81] See page 36 of the attached comments.

[82] See page 9 of the attached comments.

of the special conditions. The final permit report will also contain a reference to the state rule in the section of the report that discusses ERC use.

Comment 86.: In addition, the record is silent on the inter-pollutant trading of VOC for NO_x emissions. The states approved banking and trading rule at 10 CSR 10-6.410 is silent as well. Did the department perform an analysis as part of its significance determination to show that VOC for NO_x trades result in the same air quality benefit for ozone? If so, this analysis should be included in the public record. If not, the department should clarify in the "response to comments" how VOC reductions accomplish the same level of ozone reduction as NO_x in St. Louis. Until either EPA or MDNR establish a written policy or rule that details how inter-pollutant trades are best accomplished, it is prudent to document the record on the procedures used in this case. [83]

Department Response: Following normal agency regulatory interpretation, if something is not specifically prohibited, then it is allowed. The department reiterates that this discussion or comment on inter-pollutant trading should have been made during EPA's adoption of 10 CSR 10-6.410, *Emission Banking and Trading*, as part of the State Implementation Plan (SIP), not as a permit action.

EPA's guidance for approvable trading programs, particularly regarding sources locating upwind of maintenance or nonattainment areas, is absent. EPA guidance is also absent on inter-pollutant trading. Permit provisions must be supported by the Commission's rules and section 643.055, RSMo, and the rules that support proposed permit terms may not be stricter than the federal rules.

Action Taken: No changes were made as a result of this comment.

Comment 87.: We recommend that Condition (5) in the permit, which describes the use of ERCs towards meeting the summer time NO_x limit, include a statement that any ERC used should meet the viability standards of the state's approved banking and trading rule found at 10 CSR 10-6.410. [84]

Department Response: The department agrees with the comment.

Action Taken: The final permit will contain the appropriate wording. A definition of "ERC" was been inserted into the final permit, which includes a reference to 10 CSR 10-6.410.

[83] See page 9 of the attached comments.

[84] See page 9 of the attached comments.

Comment 88.: The proposed determination also relies on retirement of emission reduction credits to be acquired from Solutia. What effect will Solutia's bankruptcy have on the availability of those credits? What will be the impact if those credits become unavailable? [85]

Department Response: For the regulatory requirements and rights associated with the federally approved Missouri emissions banking program, please refer to 10 CSR 10-6.410, *Emissions Trading and Banking*. Missouri's emission reduction credits must be real emission reductions in the maintenance or nonattainment area. These credits are available for anyone to purchase and use, or not. For example, environmental groups could purchase emission reduction credits and retire them, thus preventing any future applicant from using the credits. Solutia's bankruptcy has no bearing on the existence of the credit. All emission reduction credits have been accounted for in the SIP.

Action Taken: No changes were made as a result of this comment.

Comment 89.: The draft permit unlawfully and improperly allows Holcim to claim emissions reduction credit in lieu of actually reducing its emissions. [86]

Department Response: The department disagrees with the comment. Even though this is something new for *attainment area new construction*, the concept of offset emission increases with emission reduction credits is being done in virtually every maintenance or nonattainment area in the nation. It is a requirement for new major sources in nonattainment areas (refer to §174 of the federal Clean Air Act). The commenter did not cite any statute or regulation that prohibits this action, hence the department believes the law allows Holcim to use reduction credits. If it is available for a new source in a nonattainment area, it is certainly proper for a new source located in an attainment area, which Holcim is.

Since the emission reduction credits actually occurred within the St. Louis maintenance and/or nonattainment area rather than outside the area, the reductions (improvements) should have a greater benefit to St. Louis than any detrimental affects caused by any slight increases.

Action Taken: No changes were made as a result of this comment.

Topic: Miscellaneous Comments

Comment 90.: The proposed determination relies on forecasts of what emissions will be and the corresponding results on air quality but does not describe what measures will be required to verify those projections accurately forecasted the emissions and their impacts? Will there be such requirements included in the permit? Are they required by regulation or statute? What mechanisms are in place to respond to greater than projected air quality impacts? [87]

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[85] See page 261 of the attached comments.

[86] See page 37 of the attached comments.

[87] See page 260 of the attached comments.

Department Response: The department has taken a conservative approach on estimating emissions and impacts. A rigorous emission testing regime is included in the permit to insure that the emission estimates are conservative. The department operates ambient air monitoring stations around the state, as a part of the State Implementation Plan (SIP), to monitor Missouri compliance with the federal Clean Air Act and the NAAQS. The department is requiring additional monitoring to assess Holcim's impact. Special conditions listing in section (4) *Conditions Resulting from Ambient Air Quality Analyses* of the permit contain those additional requirements.

Estimates, or "forecasts", of emissions are the best information the department has when we are dealing with sources that have not constructed and operated yet. However, the department has included a rigorous testing and monitoring regime to insure that Holcim operates within the limits set. Please see special conditions (1) and (7).

Although the department does not anticipate any air quality compliance as a result of the issuance of this permit, safeguards do exist to protect Missouri's citizens. First, the department has included a requirement that Holcim conduct ambient air quality monitoring for PM_{10}. That requirement is found in special condition (4)(D). Included in the special condition is the required action should the ambient air quality standards be exceeded.

Illinois industries' air pollution does impact Missouri. If Illinois' sources are a cause of the exceedances, Missouri may have to seek relief through the federal Clean Air Act section 126.

Action Taken: No changes were made as a result of this comment.

Comment 91.: Conditions when a construction permit is required are defined. These provisions are ill advised because they create potential conflicts with the regulation. They are superfluous as the company must comply with them regardless of their presence as a condition in the permit. Therefore, they are neither necessary nor appropriate and we recommend they be removed or modified.[88]

Comment 92.: Pages 19 - 20 in the fact sheet provide a general description of the cement production process and the types of raw materials and fuels that will be utilized in the Holcim operation. The department notes that Holcim is authorized to combust coal, petroleum coke, and tires as the primary fuel along with oil and other non-hazardous materials as secondary fuels. The summary also suggests that "as other sources of fuel become available, Holcim will review their chemical and physical properties to assess their potential for providing the necessary thermal energy to the pyroprocess". So that there is no confusion later on, the permit should make clear that Holcim is authorized to combust only those fuels that are specifically evaluated as part of this PSD permit analysis. We recommend that the permit clarify that if other fuels appear promising in the future, Holcim would be authorized to combust such fuels only after

[88] See page 331 of the attached comments.

seeking approval from MDNR; following an explicit BACT analysis and opportunity for public review for each new fuel which may result in a significant increase in emissions. [89]

Department Response: The department agrees with the first comment, but disagrees with the second.

It is true that Holcim will have to comply with the rules of the state and federal government regardless of the air permit conditions. The department does not intend to create any additional rights or privileges by the inclusion of this special condition. The condition is intended to supply guidance to the applicant as to the applicability of the construction permit rule. However, the inclusion of this as a special condition may be more confusing than clarifying. The draft permit wording has been moved to the Project Review portion of the final permit.

The department requires construction or modification at a source, regardless of emission increase, to acquire a construction permit from the department prior to commencing construction. With the advent of the operating permit program, the department hopes to alleviate unnecessary construction permit activity. The second comment would result in Holcim being required to modify the construction permit and the operating permit when no emission increase occurs. When an emission increase does occur, 10 CSR 10-6.060(1)(C) applies and a construction permit will be required. If a significant increase occurs, then 10 CSR 10-6.060(8) applies, including the opportunity for public review noted in 10 CSR 10-6.060(6)(C).

Action Taken: The final permit will contain the appropriate wording. The department is deleting special condition (1)(B).

Comment 93.: The definition of 12-month rolling average needs to be changed to remove the portion of the definition that deals with the less than 12-month period. As written, the definition defeats the purpose of the long-term averages. [90]

Comment 94.: If more than one NO_x limit is established for initial and on-going operations, to allow for a period of optimization of the multi-stage combuster, EPA recommends that the NO_x limit should be reset when the new, lower standard takes over. [91]

Department Response: The commenters misinterpreted the department's intent in the definition of 12-month rolling average for the less than 12-month periods. The department intended that the permittee would have the entire 12-month limit available throughout the first year period. Therefore, in the first year, the permittee would report the monthly amount for each month and then divide the total of the available months' emissions by 12 for comparison to the rolling 12-month limit. For example, say the first two operational months of NO_x emissions are 5.0 and 4.5 pounds of NOx per ton of clinker, respectively. The total of these two months is 9.5. Then

[89] See page 15 of the attached comments.

[90] See page 330 of the attached comments.

[91] See page 330 of the attached comments.

dividing by 12, the result is 0.8 pounds of NO_x per ton of clinker, which is in compliance when compared to the 3.0 pounds of NO_x per ton of clinker emission limit.

The department believes that the draft permit already specified that each standard (regardless of pollutant type) initiated a new rolling average period. This seemed evident from the fact that the different emission limitations identified its own averaging period. However, in light of the apparent confusion, the department is revising the definitional language to help clarify its intent.

Action Taken: The final permit will contain the appropriate wording. The definition of 12-month rolling average has been changed to clarify the department's intent.

Comment 95.: Conditions (1)(D) and (1)(E) should be changed to allow for "business" days rather than calendar days, or 5 additional calendar days should be added.[92]

Department Response: Calendar days are consistent with our standard permit reporting wording. Ten calendars days allows a sufficient number of "business" days for doing the necessary record keeping to discover deviations. Deviation discovery is a significant activity that warrants giving it priority. The department does not anticipate such a number of deviations to deal with that Holcim's managers will be overwhelmed.

Action Taken: No changes were made as a result of this comment.

Comment 96.: The department has chosen to include special conditions that include language taken from the state's Part 70 Operating Permit regulations (10 CSR 10-6.065). While not specifically supported or required in the Construction Permit regulations of 10 CSR 10-6.060, Holcim does not object to the concept of addressing the interim period between the issuance of the Construction Permit and the Operating Permit with certain "operating permit-like" special conditions.

Specifically, special condition (1)(H) refers to permit reopening. The regulatory language for reopening a Part 70 Operating Permit is found in the State's regulations of 10 CSR 10-6.065(6)(E)6.1.(I) through (V). Among these five situations that may be cause for reopening an operating permit, only (II) and (V) have any potential relevance to a construction permit, as reflected in the current draft permit special condition (1)(H). However, Holcim proposes that the exact language from 10 CSR 10-6.065 (6)(E)6.A.(V) be used as follows:

(H) This permit may be reopened with cause if:

2. The department determines that the permit must be reopened and revised to assure compliance with applicable requirements. [93]

Department Response: The department disagrees with the comment. The construction permit reopening clause is included to address specific issues in the construction permit, not simply the

[92] See page 7 of the attached comments.

[93] See page 332 of the attached comments.

interim period between its issuance and the issuance of the operating permit. In this case, there are two very significant regulatory requirements that are dealt with in the construction permit that will not be dealt with in the operating permits. Those are BACT emission limitations (a case-by-case analysis, that does not exist in a regulation) and ambient air quality standards and increments. The New Source Review program has the unique task of fulfilling this role in the regulatory scheme of managing air resources. In this instance, the operating permit is no substitute.

Action Taken: No changes were made as a result of this comment.

Comment 97.: Condition (1)(N)1. should be changed to coincide more closely with 10 CSR – 6.065, *Operating Permits*. As written, the condition is overly broad, requiring responsible official signature on everything. [paraphrased] [94]

Department Response: The department disagrees. The language used is unambiguous when it refers to "required to be submitted", which is the first standard to be applied to any document being submitted. Correspondence that Holcim would write to the department that is not "required" does not meet the test.

Action Taken: No changes were made as a result of this comment.

Comment 98.: Conditions (2)(B), (2)(C), (2)(D), and (2)(E) specify BACT limitations for SO_2, NO_x, CO, and VOC in terms of mass (#/hr, annual average) and rates (#/ton clinker, annual average). In addition, Conditions (3) and (5) establish special conditions for NO_x. Each condition specifies the use of continuous monitors to measure and report emissions. We concur with the selection of continuous emission monitoring equipment. However, what is implied but not stated in the permit is that the CEMS must measure and report in terms of the applicable standards, which in this case requires additional measurement of hourly exhaust flow rates and the total amount of clinker produced. The permit should make clear that the measurement "system" for each pollutant is comprised of the concentration monitor, a diluent correction monitor (% O_2 or % CO_2) as necessary, a flow measurement monitor, any moisture correction device (to assure consistent measurement basis), a measurement system for clinker production, and an automated data acquisition and handling system.

In addition, it is unclear when the CEMS must be installed, operational, and quality assured, and to which performance specifications the monitors must certified. For example, SO_2 NO_x, and CO CEMS (along with their diluent correction monitors) are generally designed to meet Performance Specifications 2, 3, and 4 in 40 CFR Part 60, Appendix B; even though the units at Holcim are not subject to the NSPS for these standards. In addition, mass measurement systems, which include the addition of a flow meter, are generally designed to meet Performance Specification 6. It would be beneficial for the permit to reference these requirements or some other peer-reviewed voluntary consensus standard as a permit condition.

[94] See page 335 of the attached comments.

Permit requirements for CEMS also typically provide for daily operational and calibration requirements, such as those in 40 CFR §§60.13 or 63.8 to assure adequate data collection and quality. In addition, it is important to assure the on-going quality of the data through period quality assurance procedures. Procedures, such as those in 40 CFR Part 60, Appendix F provide adequate measures. Lastly, the permit should specify when the monitors must be operational and provide quality assured data. Typically, the CEMS are installed and certified prior to or during the initial performance tests, which should occur no later than 60-180 days after initial startup of the kiln-system. Since compliance with the BACT standards is determined independent from Title V permitting, we encourage the department to include the critical CEMS benchmarks, or similar rule references, in the final PSD permit. If the monitoring requirements are deferred or otherwise delayed past the typical 60-180 day period following startup, then the record should clearly provide the justification for doing so. [95]

Department Response: The department agrees with the comment.

Action Taken: The final permit will contain the appropriate wording. The final permit reflects changes indicating that monitoring will be conducting using the appropriate measurement system. The measurement system will include all the necessary elements to collect, analyze and report timely, accurate and quality assured data. Special condition (1)(O) has been added.

Comment 99.: We also request an extension of the public comment period for an additional 30 days. In Illinois, there is a 30-day comment period after the public hearing. Many people are unaware that Missouri's public comment period ends the day of the public hearing and will be unable to comment on this source that would have such great impacts on their lives. [96]

Department Response: The Missouri Department of Natural Resources is obligated to follow Missouri law regarding procedural issues. The state rule reads in part:

10 CSR 10-6.060 (12)(B) Public Participation 2.B. … *The notice shall state, a public hearing shall be held, if requested, concerning the permit application, at which time any interested person may submit any relevant information, materials and views in support of or opposed to the permit applied for. The notice shall state the location and time of the public hearing (if one is requested), with the hearing being held in the county in which all or a major part of the proposed project is to be located and with the hearing being held not less than thirty (30) nor more than forty (40) days after the date of publication of the notice. The notice also shall state that any interested person may submit relevant information materials and views to the permitting authority, in writing, until the end of the day on which the public hearing is held, or would be held if requested. ...*

No provisions for an extension of the public comment period has been provided. The public notice provided 33 to 37 days of public comment (between February 22, 2004 and March 29, 2004). Two hearings were held on March 29, 2004. This request for an extension in the public

[95] See page 11 of the attached comments.

[96] See page 267 of the attached comments.

comment period came in on the last day of the public comment period, March 29, 2004. The public notice stated that all comments must be received by the end of the day of the public hearing, March 29, 2004.

Action Taken: The department is not authorized by the regulation above to grant an extension to the public comment period and is not doing so.

Comment 100.: Special condition (2)(A)2.A. contains wording that is confusing rather than clarifying. Please reword as follows:

The permittee shall control the emission of PM_{10} from the quarry haul road(s) [modeling emission point (EP) number 4, emission unit (EU) numbers 1, 2 and 3] so as to achieve 90% control of PM_{10}. [97]

Department Response: The department agrees with the comment.

Action Taken: The final permit will contain the appropriate wording.

Comment 101.: The exemption for truck washing in special condition (2)(A) 4. should be expanded to include other times when washing isn't necessary for nuisance dust control. The following wording is suggested:

Truck Washing Stations – To control the tracking of particulate matter onto the plant access roads, the permittee shall install and operate truck washing station(s) to wash trucks leaving the facility. The permittee may suspend use of the truck washing station(s) during periods of freezing conditions when its use would be inadvisable for traffic safety reasons and during periods of rainy or other inclement weather conditions when truck washing isn't necessary for nuisance dust control. [98]

Department Response: The department disagrees with this comment. A significant purpose of the washing station(s) is to prevent the tracking of dirt and mud onto paved surfaces to prevent future entrainment into the ambient air, not simply the control of particulate at the washing station(s). Mud and dirt track out is as much a problem during rainy periods as during regular operations.

Action Taken: No changes were made as a result of this comment.

Comment 102.: Special condition (1)(L) is based on specific language in the operating permit rule. There is already a reopening for cause condition in the construction permit, which is an additional safeguard not specifically provided for in the construction permit regulations. While

[97] See page 334 of the attached comments.

[98] See page 334 of the attached comments.

this special condition is expected in the Title V permit, it is not relevant as a construction permit condition and should be removed.[99]

Department Response: The department agrees with a portion of the comment, but not all of it. It is true that there is another condition specifying the reasons for reopening. Please refer to response to comment 96. Special conditions in construction permits are imposed when there is not explicit regulatory language, but the condition is necessary for successful environmental operation of the facility. In this instance, it is important that the permittee understand that until the department takes specific action on the permittee's request, the permittee must comply with the permit as written.

Action Taken: The final permit will contain the appropriate wording. Condition (1)(L) is retained, but revised in the final permit to remove the first sentence.

Comment 103.: Page 16, third bullet of the Project Review, contains some inaccuracies concerning HAP emissions. The following wording is suggested:

The department expects hazardous air pollutant (HAP) emissions to be emitted from the proposed equipment. HAPs of concern from this process are: dioxins/furans; chlorine; hydrogen chloride; and compounds of lead, beryllium, mercury, arsenic, cadmium, chromium, manganese and selenium.[100]

Department Response: The department agrees with the comment.

Action Taken: The final Project Review will contain the appropriate wording.

Comment 104.: Page 21, Table 1 of the Project Review, should include a row of NO_x emissions consistent with the retirement of maximum allowable ERCs from special condition (5). Additionally, the Table should have a row showing the resulting annual NO_x emissions with the addition of the 200 short tons of NO_x per year of source emissions. [101]

Department Response: The department partially agrees with the comment. Table 1 does show emissions consistent with special condition (5). However, the Table should reflect the maximum emissions available to Holcim, if Holcim is able to acquire the additional ERCs.

Action Taken: The final Project Review will contain the appropriate wording.

Comment 105.: Page 28, the bottom of the page of the Project Review, should read "low sulfur" rather than "law sulfur". [102]

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[99] See page 333 of the attached comments.

[100] See page 337 of the attached comments.

[101] See page 337 of the attached comments.

[102] See page 337 of the attached comments.

Department Response: The department agrees.

Action Taken: The final Project Review will contain the appropriate wording.

Comment 106.: Page 34, the fifth full paragraph of the Project Review, should have a statement that responds to the regulatory section above it that SNCR will achieve more than equivalent reductions to BACT since it is in addition to BACT. [103]

Department Response: The department agrees with the comment and Project Review has been changed to reflect this.

Action Taken: The final Project Review will contain the appropriate wording.

Comment 107.: In General Condition (1)(A), the permit notes that Holcim must prepare a written operation and maintenance plan, including the "PCMACT sources identified in special conditions (6)(C)2." We were unable to locate this special condition in the draft permit. This may be an artifact from a prior draft and should either be removed or properly referenced. [104]

Department Response: The department agrees with the comment. The reference was intended to be to the appropriate part of special condition referencing 40 CFR 63, Subpart LLL. Unfortunately, the numbering changed during the draft permit revisions and was mistakenly not updated. The special condition reference should now be "(7)(E)3.B." That will be corrected in the final permit.

Action Taken: The final permit will contain the appropriate wording.

Comment 108.: The department should consider the addition of a general duty clause requiring Holcim to minimize emissions during all periods of operation consistent with good engineering practice. For example, the 24-month optimization demonstration period selected for NO_x may not need to be fully utilized. If the system can be optimized sooner than 24 months, the company should strive to meet the lower limits if achievable. [105]

Department Response: The department disagrees that a general duty clause is necessary to minimize emissions. The permit special conditions are such that it is in Holcim's best interest to demonstrate compliance (or better).

Action Taken: No changes were made as a result of this comment.

[103] See page 337 of the attached comments.

[104] See page 14 of the attached comments.

[105] See page 14 of the attached comments.

Comment 109.: Condition (7) includes a disclaimer that the summary of MACT requirements is included only for informational purposes and that the company should defer to the MACT standard for an understanding of its obligations under the rules. In addition, the permit notes that this condition will expire upon issuance of the Title V operating permit. This approach is generally acceptable but should also be followed for the other federal technology standards mentioned (or not) in the permit. Specifically, the permit includes a similar summary for NSPS Subpart OOO, but doesn't include the "informational" disclaimer. Other standards, like NSPS Subpart Kb and Y, are mentioned in the Fact Sheet but not referenced in the PSD permit at all. It would be helpful if the permit treated each of these other technology requirements in the same fashion. [106]

Department Response: The department agrees with the comment. The final permit special condition (7) will be modified to identify these other federal regulatory requirements and references.

Action Taken: The final permit will contain the appropriate wording.

Comment 110.: Pages 49 - 50 in the fact sheet describes the methodology used by the department to evaluate worst case ozone impacts from the proposed Holcim facility. We commend the department and Holcim for their efforts in assessing these impacts and believe that the analysis and associated mitigation is imperative based on the size and proximity of the Holcim facility to the former-1-hour but soon-to-be-8-hour St. Louis ozone nonattainment area. While the analysis relied on reasonably available tools, it remains uncertain whether the episodes used represent the worst case impacts on St. Louis from the Holcim plant or not. Further, even though the PSD permit presumably establishes state-of-the-art controls for the Lee Island facility, it is possible that further analysis of control strategies in St. Louis and the surrounding area may require additional mitigation from the Lee Island plant; in particular for the new 8-hour ozone and $PM_{2.5}$ standards. MDNR should consider adding a re-opener clause or other disclaimer that issuance of the PSD permit does not exempt Holcim from further scrutiny and that the department may require 1) additional permanent reductions, if necessary, as part of the broader geographic control plan, and 2) temporary curtailment of emissions on critical ozone days. [107]

Department Response: The department disagrees with the comments. First, the department understands that a limited number of episodes were actually analyzed. However, adjustments were made in the analyses to account for this limitation.

Second, there is no need to include additional conditions for unknown future control strategies. If further controls are deemed necessary and appropriate, then EPA or the state will have the authority to impose those requirements.

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[106] See page 15 of the attached comments.

[107] See page 15 of the attached comments.

Holcim's installation is in an attainment area, outside of the nonattainment area. It seems more likely that this type of conditioning would be included in nonattainment area permits, rather than in attainment area permits.

Finally, this condition would create neither a right nor an obligation on Holcim's part. Any further action would require, in these cases, their own statutory authorities. If anything, a statement such as this belongs in the Project Review, not in the special conditions, since it does not create either a right or obligation for Holcim.

Action Taken: No changes were made as a result of this comment.

Comment 111.: Page 24 in the fact sheet describes the improvements in energy efficiency from the pre-calciner, pre-heater, multi-stage-combustion kiln at the Lee Island plant over the industry norm. This is an informative discussion, but it is uncertain how the department factored into its permit decision. For example, did the efficiency improvements influence selection of one BACT technology over another? In particular, was a lessor technology selected because of the ability to produce more product for the same level of emissions compared to a less efficient plant? How are the energy efficiency improvements important to the final permit decision? Will the new plant replace an older, existing plant with equal emissions but lower output? How does a new green field plant, albeit more efficient, provide a positive net environmental benefit? [108]

Department Response: Since these two paragraphs and table fall into the same category as "Technical Description" or "BACT Overview" and were not used further, no response is necessary. The BACT decision record stands on its own and is complete. The information used in making the BACT determination has been fully disclosed.

Action Taken: No changes were made as a result of this comment.

Comment 112.: Permit Attachment A provides a general framework for how Holcim should calculate compliance with the annual mass and rate limitations. The table includes entries for a number of key data, but doesn't describe the methodology for calculating compliance with the permit. An example, showing how each calculation is to be made, would be very helpful. This could include the equations that Holcim will use to calculate hourly emissions from the CEMS and then how such hourly data must be averaged into the units of the standard. Depending on the averaging times selected for the BACT emission limitations, the attachment may need further clarification. [109]

Department Response: The department agrees in part. However, since the department added a new special condition (1)(O) dealing with CEMS specification and added condition wording that requires the presentation of data in the limitation form, there no longer exists a question about

[108] See page 15 of the attached comments.

[109] See page 16 of the attached comments.

CEMS data calculation or the generation of comparable data. Please refer to response to comment 98.

Action Taken: The final permit will contain the appropriate wording.

Comment 113.: The table on page 44 of the fact sheet indicates that Holcim's 31.6 micrograms per cubic meter (mg/m^3) contribution will exceed the 30 mg/m^3 PM_{10} 24-hour increments by itself. On page 47, the table indicates that Holcim's increment contribution is only 26 mg/m3. We recommend that to avoid any confusion, it would be helpful to add additional clarification that 31.6 mg/m^3 is the maximum 24-hour concentration, not the high second-highest 24-hour value that determines if the increment is exceeded or not. [110]

Department Response: The department agrees.

Action Taken: The final permit will contain the appropriate wording.

Comment 114.: An Environmental Impact Statement ("EIS") should be completed prior to permit issuance. (Oral comments received at hearing) [111]

Department Response: The completion of an EIS is not a requirement for an applicant seeking a state air construction permit. An Environmental Impact Statement (EIS) is a requirement under the federal National Environmental Policy Act (NEPA). An EIS is required for a major federal action that significantly affects the quality of the human environment. In this case, the only "federal action" that had the potential to trigger an EIS was the Section 404 permit issued to Holcim by the U.S. Army Corps of Engineers for the proposed barge fleeting facilities at the site. During the review of the Section 404 permit, the Corps received numerous requests for an EIS, including one from Missouri Governor Bob Holden. However, the Corps of Engineers determined that an EIS was not necessary. The Corps' Environmental Assessment resulted in a "Finding of No Significant Impact." Current state law does not give the department the authority to require an EIS. Without a state law granting that authority, we can not require an EIS. The department is obligated to follow Missouri law concerning substantive and procedural requirements.

Action Taken: No changes were made as a result of this comment.

[110] See page 16 of the attached comments.

[111] See pages 35, 67, 89 and 97 of the St. Louis Hearing transcript.